

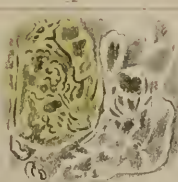
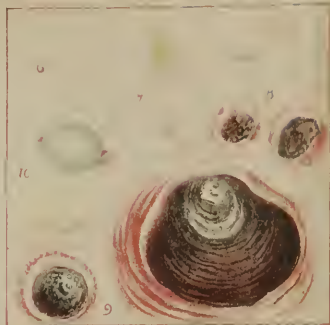


# CUTANEOUS DISEASES

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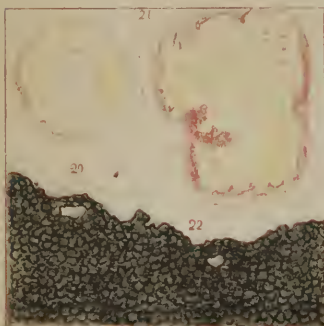
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Division 4





AN  
EPITOME  
OF THE  
AMERICAN ECLECTIC PRACTICE  
OF MEDICINE,

SURGERY, OBSTETRICS, DISEASES OF WOMEN AND CHILDREN,  
MATERIA MEDICA AND PHARMACY,

DESIGNED AS A

TEXT BOOK FOR PHYSICIANS, AND STUDENTS OF MEDICINE.

BY

✓  
WILLIAM PAINE, M. D.,

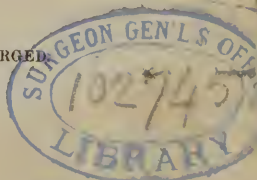
PROFESSOR OF THE PRINCIPLES AND PRACTICE OF MEDICINE AND PATHOLOGY IN THE  
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CLINIC MEDICINE AND SURGERY IN THE EC-  
LECTIC COLLEGE, ETC., ETC.

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THIRD EDITION REVISED AND ENLARGED

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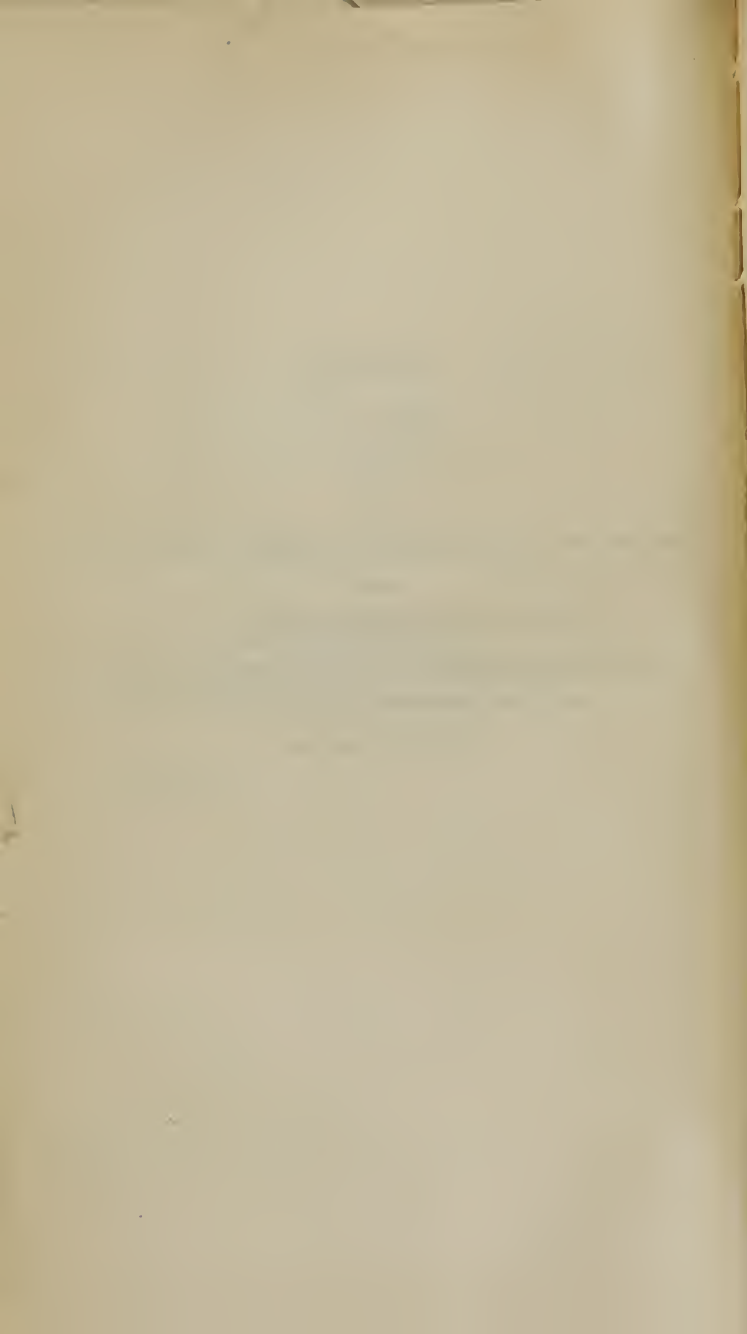
*Reuben Scovell, Levi Sutliff, Esq., Geo. M. Tuttle, Esq.,*

*and*

*Hon. Judge Milton Sutliff,*

*In consideration of their early and continued friendship, this work is most respectfully*  
*inscribed by the*

*AUTHOR.*



## PREFACE.

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IN presenting the third, and very much enlarged edition of the Epitome to the profession, we expect it to receive the ordinary criticisms.

While we are conscious of its imperfections, we flatter ourselves that we have introduced a sufficient amount of new and practical matter, relative to the management and treatment of diseases, to warrant it a place in the library of every physician who desires to keep pace with the progress of medicine, and to treat disease with the greatest possible success. The work, as its title implies, is designed to be an Epitome of the American Eclectic Practice of Medicine in all its branches; and although it could hardly be expected that we should treat as elaborately upon many subjects as may be desired by some, yet we apprehend that but few works of this character will be found to discuss a greater variety of subjects, or to give more complete details of the treatment of disease. In the preparation of the department of Surgery we have to acknowledge our indebtedness to Professors McClintock and Livezy, for their valuable

contributions. In the department of Toxicology and Antidotes to Poisons, to Professor Gauntt; and in the department of Practical Medicine, we are indebted to many of our most prominent practitioners for kind suggestions.

If the work subserves the purposes of humanity, aids the student of Medicine in the acquirement of a knowledge of the profession, and assists the practitioner in his arduous duties, it will gratify the highest ambition of the

AUTHOR.

*Philadelphia, June, 1863.*

Rise, Progress, and Practical Principles  
OF THE  
AMERICAN ECLECTIC SYSTEM  
OF  
MEDICINE AND SURGERY.

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SOON after the settlement of this country by Europeans, it was discovered that the aborigines were in the habit of using a large number of remedies for the removal of disease.

The early white settlers not being well supplied with physicians, were induced to resort to the same means, and the beneficial influence of the medicines soon introduced them into general use.

The exposures and privations incident to the rapid settlement of the country induced many diseases, which were easily controlled by the use of indigenous remedies. The increasing confidence in these medicines led many persons to devote themselves to the cure of diseases through their agency. This class of individuals were mostly ignorant of anatomy, physiology, pathology, chemistry, and surgery; and although in many instances remarkable cures were performed, at other times an amount of ignorance was displayed which was truly lamentable, often proving most disastrous to the health and lives of the people.

Notwithstanding these facts, the inefficiency of the Allopathic treatment increased the faith of the people in the efficacy of native remedies; so that, in many sections of the United

States, no other class of physicians could get employment. And notwithstanding the most stringent laws were enacted, prohibiting all persons from practising as physicians or surgeons, except regular Allopathic graduates, the use of native remedies continued to increase; and at length many of these obnoxious laws were repealed by overwhelming majorities.

About the year 1810, a native of New Hampshire, Samuel Thomson, a strong-minded and sagacious man, observing the faith of the American people in the power of native remedies to remove disease, took advantage of the fact, and attempted to establish a new botanic system of medicine. He compounded several valuable remedies, and arranged them in numbers from 1 to 6, for which he obtained a patent in 1813, thus monopolizing the exclusive right to prepare and prescribe the very remedies which had been so extensively used by the natives, as well as many practitioners among the whites. From the time that Dr. Thomson obtained his patent until 1820, he and his followers had almost the exclusive control of the Botanic practice. After taking the most extensive and impartial view of Dr. Thomson's system, it is quite difficult to decide whether his labours were really of more value than detriment to the progress of American medicine; as, while he presented his claims with vigour, his entire ignorance of general medicine led him to reject many of the most valuable remedies which had formerly been used by the Botanics, and to recommend others as universal panaceas, which had only limited virtues. Dr. Thomson's entire practice, when stripped of the bold pretensions with which he advanced and defended it, will be found to be nothing more than the original Botanic system to which I have alluded, together with a few formularies, and the more extensive use of vapour baths.

The system of Thomson was soon very materially modified, and rendered more rational and beneficial by Dr. Morton Howard, a native of North Carolina, who wrote and published a very much improved system of Botanic practice in Columbus, O., in 1833; and by Morris Mattson, who published in 1845 a very



elegant and elaborate work upon the principles and practice of the Botanic system, which included not only what was known by Dr. Thomson, but nearly all the essential and reliable facts relative to the Botanic practice, of this country, up to the introduction of Thomson's system. It is also due to Dr. Alva Curtis, of Cincinnati, O., and Dr. W. J. Comfort, of Philadelphia, Pa., to say, that their writings have been essential improvements on the writings of Thomson, and have in no small degree contributed to the advancement of the American Eclectic practice. Before dismissing this portion of the subject, however, I will state that very many of the Botanic and Thomsonian practitioners had acquired a large amount of experience, and used the native vegetable remedies with decided skill in the management of many diseases; yet there were no systematic organizations, nor was the scattered and detached medical knowledge of physicians so arranged and presented by any of the writers, as to constitute a scientific system of medicine.

In 1825, Wooster Beach, M. D., a graduate of the University of New York, an Allopathic school, obtained from Dr. Jacob Tid, of New Jersey, a noted Botanic, a full knowledge of the virtues and curative powers of the native remedies, as far as they were known at that time.

The information thus obtained enabled him to cure many cases and diseases which hitherto had baffled the skill of the Allopathic profession. In 1827, Dr. Beach, in connexion with some friends, established a large infirmary, for the purpose of more extensively testing the merits of the indigenous remedies of America in the cure of disease. In one year he treated about two thousand one hundred patients with such remarkable success, as to attract the attention of many of the leading minds of that time; and the subject of establishing schools, in which the medical resources of our country might be studied in addition to the ordinary curriculum pursued in medical colleges, was contemplated.

Accordingly, in 1829, initiatory steps were taken, and in 1830 a permanent organization was effected by an amendment to the

charter incorporating the Worthington Literary College of Ohio, thus connecting with it a medical department.

The first systematic course of lectures in this institution, was held in the winter and spring of 1830. The Faculty were composed of medical gentlemen of the first order of talent, all of them graduates of Allopathic colleges. The teachings embraced all the branches usually pursued in medical colleges: to wit, Anatomy, Physiology, Pathology, Surgery, Theory and Practice of Medicine, Obstetrics, and Diseases of Women and Children, Materia Medica, Pharmacy, and Chemistry. In addition to which a full knowledge, as far as was known, of the curative powers of indigenous remedies, together with the medical resources of Homœopathy, Hydropathy, &c., was taught with a view of appropriating all that science and experience proved to be valuable in the treatment of disease. Hence they applied to their teachings and school the term *ECLECTIC*; which means, "to choose, to select."

The prosperity of the school was almost unparalleled. The graduates met with great encouragement, and their practice with remarkable success; so much so, that other schools in different sections of the country were subsequently organized; yet, owing to the difficulties of prosecuting a medical college in a small inland town like Worthington, the Faculty decided to abandon it, and re-organize in Cincinnati, which they accordingly did in 1842. In 1845 they obtained a charter from the Legislature of Ohio, incorporating the Eclectic Medical Institute of Cincinnati. They immediately organized, and the following gentlemen were appointed its Faculty:

B. L. Hill, M. D., Professor of Anatomy.

T. V. Morrow, M. D., Professor of Physiology, Pathology, and Theory and Practice of Medicine.

H. Cox, M. D., Professor of Surgery.

L. E. Jones, M. D., Professor of Materia Medica, Therapeutics, and Medical Botany.

A. H. Baldrige, M. D., Professor of Obstetrics, and Diseases of Women and Children.

J. Oliver, M. D., Professor of Chemistry and Medical Jurisprudence.

The first course of lectures was commenced in March, and continued until the 1st of July, 1845. An event in the progress of this school, which contributed very materially to its prosperity, was the appointment, in the spring of 1846, of Joseph R. Buchanan, M. D., of Louisville, Ky., to the chair of Physiology and Medical Jurisprudence. Dr. Buchanan entered upon his duties in the fall of 1846: and bringing his great philosophical power to the aid of Dr. Morrow's indefatigable zeal, energy, and perseverance, a more scientific arrangement was effected of the vast amount of practical medical knowledge previously accumulated. He also brought much weight and influence to bear in the successful defence of the cause against the attacks of a bigoted, sectarian foe. Drs. Morrow and Buchanan, aided by their colleagues, directed their efforts with remarkable success to a permanent establishment of the institution, and the American Eclectic Reformed Practice. The names of Morrow and Buchanan will ever be held in grateful remembrance by all true lovers of humanity, as pioneers in the cause of medical reform.

But the progress of these co-labourers was not destined to be long unimpeded. In July, 1851, Dr. Morrow, care-worn and exhausted from a life of incessant labour and anxiety for the benefit of mankind, sank beneath the overwhelming pressure of duties involved upon him, aided by an attack of dysentery, and yielded up his great soul to the God who gave it. He sleeps beneath the mighty pyramids of benevolence and goodness, which, while living, he created, and that will ever stand a vast monument to his greatness.

After the death of Dr. Morrow, difficulties occurred in the faculty, which resulted in a division, and the organization of another school, called "The Eclectic College of Medicine." The jealousies existing between these schools, together with the bickerings of those who occupied prominent positions in the reform movement, disgusted Prof. Buchanan, and caused him

to retire to private life in Kentucky, where he now enjoys the quiet associations of the domestic circle, and the gratitude of all true lovers of medical progress for his gigantic efforts towards the establishment of true American Eclectic medicine. After several years of strife and contention between the medical schools of Cincinnati, they re-united in the winter of 1859 and '60, under the protection of the Eclectic Medical Institute. The best wishes of all true Eclectic medical reformers are with them; and for the good of the cause it is to be hoped that the future faculty may emulate the characters of their illustrious predecessors, of which we have spoken, and rising above all mercenary considerations, devote their labours to the upbuilding of the cause, and the welfare of suffering humanity.

While medical reform was thus progressing in the West, its friends in other parts of the country were by no means idle; as in the mean time the Eclectic medical colleges were chartered by the legislatures of New York, Virginia, Indiana, Tennessee, Kentucky, Georgia, Pennsylvania, and Massachusetts. As early as 1848 a society was formed, called "The Middle States Reform Medical Society," having for its object the permanent establishment of an Eclectic Medical College in Philadelphia. In 1850 they organized a school, but did not obtain a charter, and lectures were given to small classes by members of the Society.

In 1853 this Society succeeded in obtaining a charter, granting all the rights and privileges of Allopathic colleges. A full board of instructors was organized, and the school put into operation. The want of a suitable building, and a medium through which to bring the school and its principles before the people and profession, together with the unhappy appointment of ambitious, but incompetent men to the position of teachers, rendered the enterprise comparatively unsuccessful, until the year 1859, when the school was re-organized, and a new faculty appointed, a large and commodious college building obtained, a museum furnished, and the school put into full working condition, from which period it has been one of the most flourishing and prosperous institutions in the United States. The classes,

which had previously been small, soon became large, and the graduates command most influential and prominent positions as physicians and surgeons. That there is a necessity for a change in the practice of medicine and surgery, we infer from the fact that the present state of society is admitted to be one of great intelligence, and as such demands a thorough revolution in all those systems which ignorance has originated, and self-interest kept alive. The supporters and advocates of such systems not only assume to be wise, but condemn every thing which is opposed to their prejudices and inherited opinions. This is now the case with the Old School, or Allopathic system of medicine. This system is a thing of the past, a product of the dark ages, and bears upon its face the ancient date of its birth. Its great object and aim are secrecy; and when scrutinized by the light of the science and intelligence of the nineteenth century, its fallacies, deformities and imperfections make a most unseemly exhibition. Its advocates, notwithstanding, assume the prerogative of infallibility, and, like the priests of old, are doing all in their power to keep the world in ignorance, not only as to the real nature of their system of medicine, but of all other systems; and in this they have too well succeeded for the good of mankind. All other cognate sciences are presented to an intelligent people in harmony with the progressive spirit of the age, elucidated and explained in a manner calculated to impress the mind with all the facts brought to light by modern researches and discoveries. The Allopathic system of medicine, on the contrary, stereotyped in notions the most fanciful, dreamy, and unreasonable, in dogmas the most crude and speculative, is kept in monkish seclusion, as if far beyond the comprehension of ordinary mortals—as if none but those who have stood the test of initiation, and received the holy sanction of the fathers, could at all understand. Instead of courting investigation by teaching its doctrines in plain language, every thing has been wrapped in obscure and unmeaning language. As the result, there exists at this time the most complete and universal ignorance respecting their principles and practice of medicine among

all classes, except those who have learned from the reform literature and practice of the day. A strange anomaly in the history of these Allopathic professors and practitioners is, that an individual after having gone through a regular and prescribed course of medical studies, and that, too, under the strictest Allopathist, and having been declared by a board of examiners to be thoroughly qualified to practise medicine, and having obtained a diploma as a guarantee to the public of his competency to discharge the highly responsible duties of physician to the sick, must be branded as a quack, and that, too, for no reason other than that he has added to his medical researches a knowledge of other systems of medicine, as Homœopathy, Hydropathy, Botanicism, Thomsonianism, &c. Humiliating and disgraceful as this is, it is nevertheless true that these medical bigots, actuated by a spirit of intolerance, no sooner learn that one of their practitioners has adopted the Eclectic system of medicine, than they raise the cry of imposture and quackery. Every physician has a right to form an opinion of his own; but before passing judgment on others, he should make himself thoroughly acquainted with their doctrines and principles. In our medical colleges we review all the doctrines and medical resources of the different systems; and whenever we find a well-attested truth, a reliable item of knowledge, no matter to what department of medicine it belongs, we at once ingraft it into our system of practice. Do the other systems of medicine do this? Do they understand and teach the specific medical powers and invaluable utility of the hundred new and potent remedies introduced by the Eclectic profession? Are their students as impartially taught Eclecticism as Allopathy or Homœopathy? Their entire ignorance of our remedies and principles of cure most conclusively show that they are not. Eclectic physicians have discovered, and are using remedies, which enable them to cure a large per cent. of cancer, hydrophobia, epilepsy, tetanus, scrofula, consumption, necrosis, &c., all of which are regarded as incurable under other systems of practice. Besides, we cure all diseases, both acute and chronic, in a much less time, and



with far more certainty than any other system. No fact is better established than that the Eclectic system of medicine possesses means to cure dysentery, typhoid fever, pleurisy, pneumonia, inflammation, &c., &c., almost immediately; and that, too, by remedies which, while they act specifically in removing disease, leave no constitutional injuries. But, like every other discovery which is calculated to promote the happiness of mankind, Eclecticism is destined to receive from medical bigots criticisms similar to every new discovery and essential improvement.

Abelard, for maintaining the right of free inquiry, was condemned in solemn council. Farel, Lefevre, Hutton, Melancthon, Luther, Zwingle, Calvin, and a host of others, for lifting up the standard of independence, rejecting the infallibility of the Papacy, and condemning the unmeaning ceremony and legalized licentiousness of the church, were hunted down by the mercenaries of the Pope, and menaced by the horrors of the Vatican. It was wrong for the human mind to assert its independence, and attempt to break loose from the restraints which had held the church and the world in darkness and degradation for centuries!

Socrates taught the Athenians the existence of a Supreme Being, the source of all good, and the only true object of adoration. For this he incurred the vengeance of those who should have rendered him gratitude, and was condemned to drink the juice of hemlock.

When Descartes taught the doctrine of innate ideas, he was declared an atheist. The University of Paris became alarmed for the being of a God, and the purity of philosophy, and with all laudable zeal valiantly ordered the pestiferous works of the infidel author to be burned. It was but a short time, however, till this same infallible University adopted the very doctrine it had combated so lustily; and when Locke and Condillac attacked it, the cry of materialism and fatalism was turned against them. The teachings of Aristotle were held for many ages to be as permanent as the rock of truth itself. Francis I. passed a decree against Peter Raums, interdicting him under pain of corporeal punishment from uttering any more slanderous invectives against

Aristotle, and other ancient authors, received and approved. About a century after the Parliament of Paris passed a decree, prohibiting any person, under pain of death, from holding or teaching any maxim at variance with the ancient and approved authors, especially the infallible Aristotle. When Columbus made application to the sovereigns of Europe for assistance in his project of Western discovery, he met with cold neglect and repeated repulse. The earth was as flat as a board, and how could he get to the East Indies by sailing west? And as to finding land, that was only the day-dream of a visionary madman. All the philosophy of the past was not to be capsized, to suit the fantasy of an adventurer. When the persevering Fulton proposed to make steam a mighty agent in the propulsion of vessels, his capacious-minded, far-seeing countrymen, laughed at him. Steam had never propelled vessels; therefore, it never could. The conclusion was as natural as to look to the past for all wisdom; and Fulton was nonplussed, ridiculed, and neglected, and at last died in indigence. Galileo followed and espoused the views of Copernicus. He was reported to his holiness the Pope, who called him to an account. The theological censors condemned the system "as absurd in itself, false in philosophy, and formally heretical, because opposed to the sacred Scriptures." Galileo was commanded to renounce his heretical opinions, and thenceforth to refrain from teaching or defending them in any way. But the philosopher transgressed, and was again brought before the same faithful repositories and infallible judges of truth. He was declared to be "vehemently suspected of heresy," for holding an opinion declared and defined as contrary to sacred Scriptures. "Good Galileo" recanted, and thereby proved himself a worthy Christian, and a sound philosopher. All popedom rejoiced that a heretic had been reclaimed, and the heavens set right again.

"The man is thought a knave or fool,  
Or bigot plotting crime,  
Who for the advancement of his kind,  
Is wiser than his time.  
For him the hemlock shall distil,  
For him the axe be bared,



For him the gibbet shall be built,  
For him the stake prepared.  
Him shall the scorn and wrath of man  
Pursue with deadly aim."

The present cultivators of medical science are regarded by the advocates of Old Physic as innovators and fanatics; and when, by superior success in the treatment of disease, they demonstrate the superiority of Eclecticism over Old Physic, they, like

"A base pack of yelping hounds,  
Who wish their betters to annoy,  
If a stray cur transgress their bounds,  
Will bruise, and mangle, and destroy;  
So they will on some plan unite,  
By which to vex him and to spite:  
His very virtues they will use  
As pretexts for their foul abuse."

Notwithstanding this opposition, those engaged in the enterprise have calmly pursued their labours, most cautiously investigating the various systems of medicine, culling from each all that science and experience proved to be valuable. We have so instructed the people relative to their destructive system of mercurialization, and blood-letting, and other injurious and poisonous agencies, that Allopathists have been compelled to very essentially modify their treatment. Formerly both water and fresh air were denied their patients. Now they are compelled to acknowledge them as indispensable agents. Formerly they bled and blistered for every trifling disease. Now the people will not tolerate the practice, and they are compelled to abandon it. Formerly they gave large doses of mercury, producing salivation, ulceration, and destruction of the tissues of the mouth, liver, stomach, lungs, &c., &c. Now, by the superior intelligence of the people, they are compelled to use less of the poison.

Thus, while they refuse to acknowledge our claims, and adopt our improvements, they have been compelled to abandon many of the most destructive features of their practice, as the result of our labours and influence; and we have the most sanguine hope that the time is not far distant when all the evils of their system will be supplanted by the more rational practice of American Eclectic medicine.

We are satisfied that by a cautious and scientific selection from the present systems of medicine, with industrious research in the yet hidden medical resources of the vegetable, animal, and mineral kingdoms, together with the vast amount of new and practical contributions of the Eclectic profession, one grand system of medical practice may be established and perfected; as—

“All are but parts of one stupendous whole,  
Whose body nature is, and God the soul;  
That, changed through all, and yet in all the same,  
Great in the earth, as in th’ ethereal frame,  
Warms in the sun, refreshes in the breeze,  
Glowes in the stars, and blossoms in the trees;  
Lives through all life, extends through all extent,  
Spreads undivided, operates unspent;  
Breathes in our soul, informs our mortal part,  
As full, as perfect, in a hair as heart;  
As full, as perfect, in vile Man that mourns,  
As the rapt Seraph that adores and burns;  
To Him, no high, no low, no great, no small;  
He fills, He bounds, connects, and equals all.”

Harvey, who discovered the circulation of the blood, was called the circulator, in derision. He was deprived of the right to practise his profession in his own country; was threatened with banishment, and was finally compelled to leave his native land, to escape the obloquy that was heaped upon him, and died without realizing the benefit of his labours.

In 1522, Ambrose Pare first introduced the ligature, and tied the artery, instead of plunging the limb into boiling tar, as was practised by his contemporaries. He was denounced, with the most reckless violence, for daring to suspend the life of a man upon a mere thread. In 1638 the Countess of Cinchon, wife of the ex-king of Peru, was labouring under a fever, from which she was unable to obtain relief. The Governor of Loxa, having learned from the natives the curative powers of the Cinchona, advised her to employ it. After much hesitation she resolved to try it, and was by its use restored to health. Ten years afterwards, a Jesuit of Rome endeavoured to introduce the Peru-

vian Bark into Europe; but his efforts were unsuccessful. The profession proclaimed at once that it was a Papish remedy, and proceeded from Quacks, who created all manner of disease. Protestant England called it a Papish remedy, saying that it proceeded from the father of all Papists, the Devil. It was not, until in spite of all opposition, its utility was demonstrated, that physicians availed themselves of its curative powers.

Lady Mary Wortley Montague, while in Turkey, observing the wonderful effect of inoculation for small-pox, to mitigate the severity of that much dreaded disease, determined to introduce the practice into her native country. But no sooner did she make known her purpose, than the medical faculty arose at once and predicted the most disastrous consequences. The clergy descanted from the pulpit on thus seeking to take events from the hand of Providence. In order to satisfy the profession and the people of the great utility of inoculation, she resolved to experiment upon her own daughter, and government appointed four of the best medical men to observe its progress. Lady Montague states, that they not only manifested the greatest incredulity as to its success, but also such an unwillingness to have it succeed, that she was absolutely afraid to leave her daughter in their hands, lest she should suffer from their interference.

In 1790, Dr. Jenner, of Gloucester, remarked that the disease known in the western part of England as cow-pox, communicated to those who milked the cows, precluded those who became thus affected from being infected with small-pox. This strange fact suggested to him the idea of inoculating children with virus directly from the udder of the cow, which he accordingly did, and in the course of four or five days he saw pustules developed at all points where the skin had been punctured, similar to those of cow-pox; when the pustule broke, the pus dried, forming a thin scale or crust, which, falling off, left a cicatrice. There was little or no fever, the children continuing to eat and play as usual. After repeated experiments of this kind, Dr. Jenner became satisfied of its being a preventive of small-pox, as not a single child thus inoculated was attacked with it. But how was the discovery received by the illiberal and dogmatical portion of the profession? With ridicule and contempt, like every other proposed improvement. Jenner was

persecuted, oppressed, and driven from his country ; even religion and the Bible were made engines of attack against him and his invention. Errhman, of Frankfort, attempted to prove from Scripture that vaccination was the anti-Christ. At that time small-pox was the scourge of the human family, and, but for the discovery of Jenner, would have remained such until the present time.

In 1315, Mondini dissected two human bodies, and shortly after published his *Epitome of Anatomy*, illustrated with woodcuts. At this time, and for a long time afterward, it was customary to demonstrate anatomy upon the hog and other animals. The act of Mondini was considered heresy. The persecution of Mondini, together with the prejudice existing upon the subject at the time, prevented any other dissection of a human subject for more than a century ; and Mondini, in his experiments, dared not open the dead for fear of committing a mortal sin. It was not until the commencement of the sixteenth century that dissections for anatomical purposes were made, and then they were performed by the authority of the Pope, and not at the instigation of the medical profession.

The natives of Brazil first taught the medicinal qualities of ipecac.; but, owing to the opposition with which it was met by the medical profession, it was more than a quarter of a century before its virtues were appreciated. A Mexican soldier, more than half a century ago, demonstrated the styptic properties of the Matico, and its entire control over the bleeding vessels of the body ; but such is the tendency to oppose every new remedy that, as yet, it is never employed by the mass of the profession. Dr. Samuel Thomson discovered and proved the valuable medical properties of Lobelia ; but on modestly making known his discovery to the profession, it was not only denounced, but he was persecuted and imprisoned. At this time we find medical men using it in disguise, and at the same time denouncing its discoverer. In 1823, an association of scientific medical men, from different parts of the country, met in New York city, and made preparation for organizing a reform medical college : when, by the indomitable energy of Dr. Beach, the first reform medical college in the world was organized.

The object of this organization was to break the shackles of

Hunkerism; to open the science of medicine to all bold and thorough investigators; to enlarge and improve the *maeria medica*; to investigate more fully and clearly the nature and character of disease peculiar to the country and climate, and to place the entire profession upon a more liberal and scientific basis. But no sooner was the object and aim of this institution announced, than a majority of the profession commenced an attack upon it, denouncing, violently, all who were identified with this philanthropic movement. Dr. Beach, its founder, although a man of learning, and a graduate of one of the first allopathic colleges in the country, was assailed with terms of insolence and reproach, and all those who had the courage to participate in the work shared the same fate. To all who are in any considerable degree acquainted with the history of medicine, it is obvious that this conservatism, which has long been a characteristic of the profession, has had a most disastrous influence upon its progress.

The conservative, always ready to apologize and explain the reasons for his ungenerous course, with all complacency affirms that to talk of improvement is but a dream; that the fathers of the profession have left us their knowledge as a choice legacy, which we should keep in grateful remembrance; that the profession has already attained a position which entitles it to the highest respect.

Yet the positive uncertainty of medicines is manifested in a striking degree, as we trace the history of particular remedies, recommended by those who are revered as almost divine authority by the conservative. What differences of opinion—what an array of alleged facts directly at variance with each other—what opposite results of like experience—what ups and downs, glorifications and degradation, confidence and despair—arose in treating the same disease with the same remedies. To be satisfied upon this point we need only refer to the history of one or two prominent diseases, viz: pneumonia and syphilis. Mercury, antimony and blood-letting have been regarded as specifics in these diseases by many authors, while others of equal pedantry and learning have rejected them as useless and injurious. Such has been the uncertainty of practical medicine, that even the conservative portion of the profession, if they become

in the least enlightened, omit the heroic and adopt the expectant or tentative mode of practice. The foregoing facts disclose a lamentable state of things, but not a state to be despaired of; much less is it one to be concealed. It is our duty as guardians of the lives and health of our fellow-beings, to unmask, not only the virtues, but the faults of the profession. The course of our subject will now lead us to attempt to disclose in what the defects of the allopathic system of practice mainly consist; the cause of these, and the means which seem best calculated to remove them. Also the principles which govern the Young American Physic. In order to fully understand why the allopathic system of practice is not more successful in removing disease, it will be necessary to enter more fully into its principles of cure and therapeutic resources. For the investigation of these, it will be necessary to enter somewhat into the history of medicine. Pliny states that, if there exist any nation in which at any epoch of its history physicians were not found, there is none in which traces of medicine were not visible. It is probable that medicine has existed, either as an art or science, from the earliest period; and that the practice of medicine had its existence in the natural tendency of the soul to resist death, together with benevolent impulses towards the sufferings of others.

The earliest and most authentic account we have of the practice of medicine, is that given of Centaur Chiron, a prince of Thessaly, who went out in the expedition against Troy. From all accounts we have of his practice, it was exceedingly empirical, and consisted in the external application of a few remedies to wounds, &c., together with incantations and ceremonies to affect the imagination. Chiron transmitted his profession, according to custom, to his son *Æsculapius*, and *Æsculapius* to his two sons, *Machaon* and *Podalirius*.

Fifty years after the destruction of Troy, a temple was erected at *Titanus*, a city of the *Peloponnesus*, in honor of *Æsculapius*, who was worshipped as a god. The worship of this god very soon spread throughout Greece and passed into Asia, Africa, and Italy. Multitudes of temples were consecrated to him, among which those at *Epidaurus* in the *Peloponnesus*, at *Pergamos* in Asia, on the island of *Cos*, and at *Cyrene*, a city



of Libya, were particularly famous. In the temple at Epidaureus there was a statue of colossal size representing the god of medicine, under the figure of an old man, seated on a throne, holding in one hand a sceptre, and resting the other on the head of a large serpent; a dog, the emblem of vigilance, rested at his feet. The statue was of gold and ivory, and was the workmanship of Græsimedus. Socrates, it is said, in his last discourse with his friends, requested them to offer for him a cock, as a sacrifice to *Æsculapius*; whence we infer that this bird was sacred to the god of medicine.

The priests attached to this worship were named *Asclepiades*, or descendants of *Æsculapius*. They regarded all the knowledge, relative to disease and medicine, as sacred, their laws forbidding it to be revealed to the non-elect, lest their god should be angry; strangers were not admitted to this knowledge until they had been subjected to certain ceremonies called the tests of initiation.

These temples were erected in the midst of the most delightful scenery; no pains were spared to furnish them with the most agreeable and healthful diversions; they breathed a pure air, were subjected to a wholesome regimen, and every possible means was used to affect the mind and imagination agreeably; thus exercising a healthful and happy influence upon the constitution. Fasting and prayer were strictly enjoined upon the patients, also abstinence and sacrifices, before they were admitted to receive the response of the oracle. Those who were benefited went to their homes blessing the author of their recovery, and those who were not benefited redoubled their efforts to propitiate the god in their favor. Besides these means, remedies were used, not unlike those now in vogue, consisting in bleeding, purgatives, vomiting, friction, mineral water, &c.

There existed in the country, about Epidaureus, serpents of a yellowish brown color, whose bite was not poisonous, and which were easily tamed.

These were employed by these priest-doctors to more effectually impress the minds of their patients with wonder and astonishment at their supposed power, which, from all accounts, had the desired effect. *Aurelius Victor* relates, that during the year 350 of the foundation of Rome, that city was scourged by a terrible

pestilence; the Senate sent six deputies to consult the oracle at Epidaurus.

On arriving at the temple, suddenly an enormous serpent issued from beneath the pedestal. The sight of it filled every mind with veneration more than with terror. He moved tranquilly through the crowd and entered the vase of the Romans in the chamber of Ogulnius, the chief of the ambassadors. The serpent was sacredly borne away, and when the ambassador was approaching the city of Romulus it sprang into the waves and swam to an island in the Tiber, where a temple was immediately erected to *Æsculapius*, and the pestilence ceased.

It can hardly be doubted that the priest-doctors of these temples were endowed with strong natural powers of mind; that they understood the influence of mind over matter; and that a strong belief in their ability to cure, contributed in a very considerable degree to their success. The teachings in these temples were confined to the family of *Æsculapius* for some eight or nine hundred years. After a time they became more general, assuming more of the character of the medical colleges of the present day. Their means of teaching was confined mostly to tablets hung upon the walls and columns of the temples, showing the name of the patient, the disease, and the manner in which it was treated. One of these tablets, found on the island in the Tiber, the site of the ancient *Æsculapian* temple, bears the following inscription in Greek characters:—  
Lately a certain Caius, who was blind, came to consult the oracles. The god required that he approach the sacred altar to perform certain adorations; at once he passed from the right to the left, and having rested his fingers on the altar, he raised his hands and applied them to his eyes, whereupon he recovered his sight immediately in the sight of all the people, who rejoiced to see such marvels performed in the reign of our august Antoninus. Upon the same tablet is the account of one Julin, who had pleurisy, and the gods ordered that the ashes of the altar be put into wine and applied to his side, which being done, he was immediately cured. Another man, Valerius Aper, was blind, and the gods ordered an ointment of the blood of a white cock and honey to be applied to his eyes, which was done, and his sight restored. The only principle which guides these



priest-doctors in the administration of medicine for the cure of disease, was, that remedies, which have once cured, will cure again under similar circumstances.

The practice of medicine, in the temples, was continued until about the commencement of the Christian era. Pythagoras, who was born in the year 500, B. C., at Samos, one of the most flourishing islands in the *Ægean* sea, having one day heard a lecture on the immortality of the soul by Pherecydes, was so charmed that he renounced every other occupation to devote himself to philosophy. He travelled among the most enlightened nations, obtaining extensive knowledge in every art and science cultivated at that early period, and that of medicine among others. It was Pythagoras who first introduced the practice of visiting patients in their own houses; he also rejected all theories in medicine, and contended that experience was the only safe guide to a successful medical practice. Hippocrates, who was born on the isle of Cos, 460 B. C., was one of the first reformers in medicine we have any account of. He was one of the direct descendants of *Æsculapius*, and received his education at Cos, which contained a temple dedicated to *Æsculapius*, and a medical school; thus his advantages for acquiring a medical education were very favorable. He was not satisfied, however, with this instruction, and extended his researches into the principal Greek cities of Europe and Asia, taking a survey of the art of medicine as it then existed, which was in a state sadly deficient and imperfect; the ideas of disease, and principles of cure, being of an exceedingly vague and uncertain character. He consequently commenced a series of experimental investigations into nearly every department of medicine.

He opened an earnest warfare upon the superstitious ceremonies of the *Æsculapian* priests, and advocated the custom, introduced by Pythagoras, of visiting patients at their own houses. He also classified and arranged diseases and remedies in a much more systematic manner than had hitherto existed, and introduced a variety of new remedies, which proved exceedingly valuable in the treatment of disease. His system of Therapeutics was, however, similar to his predecessor; depending in his choice of remedies upon those which experimental observ-

ation had proved beneficial in removing disease. To show the reader how slightly the treatment of disease, twenty-two centuries ago, differed from that of a class of practitioners at the present time, I will here introduce the treatment for pleurisy, given by Hippocrates, as translated by Renouard.

“It is necessary to examine, in the following manner, the peripneumonic and pleuritic affections; if the fever is acute; if there is pain in one or both sides of the chest; if the patient suffers during expiration; if he coughs, and the expectoration is rusty or livid, or thin and frothy, or of a blood-red — if, in fine, it differs at all from that which is natural, the following course must be pursued: the pain extending above and towards the clavicle, or towards the vein and the arm, the internal vein of the arm on that side should be opened. The quantity of blood drawn should be proportional to the constitution of the body, the season of the year, the age and color of the patient; and if the pain is acute, the bleeding should be boldly pushed to syncope; afterward an injection is to be administered.

“If the pain occupies the inferior region of the chest, and is very great, you should prescribe for pleuritis a mild purgation; but the patient must taste nothing else whilst the medicine is operating. After the purgation they should have an oxymel.\* The purgation should not be administered until the fourth day; during the first three days injections should be employed; but if they are not sufficient, the purge should be given, as above said. He must be watched until the fever ceases, and the seventh day is attained; after that, if he appears out of danger, he may take a little barley-water, sweetened with honey. If the convalescence progresses and the respiration is good, the tisane † may be given twice a day, and be gradually increased in quantity and strength; but if the convalescence is slow the drink must be lessened, and a small quantity of weak tisane, for nourishment, once a day. It should be given when the patient is in the best condition, as may be known by the appearance of the urine.

“To those who approach the close of the disease, it is not necessary to give the tisane before you see the coction manifested in the urine or expectoration; nevertheless, if, when purged, the

\* Decoction of barley.

† Oxymel, honey and vinegar syrup.

patient has abundant evacuations, it is necessary to give the tisane, but in less quantities and weaker, otherwise the emptiness of the vessels would allow him neither to sleep, nor to digest, nor to await the crisis. With this exception, the crude humors should be liquefied, and whatever has been the obstacle should be ejected: then nothing prevents alimentation. The expectoration is perfectly concocted when it appears like pus: the urine, also, when it has a red sediment like brick-dust.

“As to the pain in the side, nothing contra-indicates the use of fomentations and wax-plasters. The legs and arms should be rubbed with warm oil and then anointed with fat. The hypochondria should be covered as high as the breast with a flax-seed poultice. When the peripneumonia has reached its height, nothing can be accomplished without purgation: it is bad if the patient has dyspnoea, or if the urine be thin and acid, or there be sweats around the neck and head. These sweats indicate danger in proportion to the violence of the disease, which is known by the suffocation and rattling, which increases and produces death, unless there supervene an abundant flow of viscid urine, or of concocted sputa. Whichever of these two phenomena supervenes, it indicates resolution.

“An eclegma is prescribed for peripneumonia, with galbanum and grains of pine seed, in Attic-honey. Other expectorants are employed, such as worm-wood (*Artemisia abrotanum*, Lin.), and pepper in oxymel; purgatives—boil black hellebore (*Helleborus orientalis*, Lin.), and give it as a drink to pleuritics at the commencement and while the pain is felt. A useful remedy in affections of the liver, and in pains proceeding from the diaphragm, is a drink of opoponax (*Pastinacæ opoponax*, Lin.), boiled in oxymel and strained. In general, a remedy that is to act on the stools, or urine, should be given in wine and in honey if to act on the stools alone, it should be given in a much large quantity of diluted oxymel.”

It will be seen, by comparing the treatment of Hippocrates with that of Dr. Eberle, given in another part of this work, that there is no essential difference. The bleeding and purgative plan is still adhered to.

At the death of Hippocrates, which occurred when he was about one hundred years of age, his two sons, Thassalius and

Draco, together with his son-in-law Polybius, cultivated the art of medicine, and transmitted the knowledge of their father by teaching in a public manner his doctrines. Hippocrates and his sons were the first authors of any note upon the subject of medicine.

The foundation of the Alexandrian Library, about the year 320 B. C., had a happy effect upon some departments of medicine, as Anatomy, Physiology, &c.

- But from the statement of Galen, who had examined all the contents of this library relative to medicine, it appears that the only knowledge it evinced of therapeutics was merely experimental. The Alexandrian Library is said to have contained about 600,000 volumes or rolls, which were equal to about 200,000 modern bound volumes. This library contained all the valuable information of those times in every department of science and art. It was burnt by Caliph Omar, A. D., 640, who gave as his reasons that, if the books agreed with the Koran, they were of no use, and if they disagreed they contained heresy, and should be burnt. Thus far in the history of medicine, the only therapeutic axiom was this: When a treatment was successful in one case, it was always employed in analogous cases without inquiry whether it acted upon one principle or another; although Hippocrates and his disciples suggested some diseases were cured by their opposites, and others by similars; while again diseases have been cured by remedies which appear to be neither similar nor contrary to the nature of the disease.

It is not my purpose to enter in any considerable degree into the consideration of the theories which prevailed in those ancient times relative to disease, yet I can hardly present to the reader any thing like an idea of the comparative condition of medicine, without noticing in a brief manner some of the more prominent notions relating to it. The Asclepiades, of the isle of Cos, regarded disease as a series of phenomena, resulting from the efforts of nature to remove the cause of the disease. They regarded nature as competent to accomplish her purpose in many instances, but in others medical interference become necessary. They also regarded disease as having critical days and a certain duration. Pythagoras states that the number of days which bring about the cure or death of a patient, regulates the crisis of fevers. In

remarking upon the observation of these critical periods and daily phenomena of disease, he says that a physician who neglects nothing that may contribute to the patient's health, must observe carefully what passes each day.

Among those days of even numbers the most important are the fourteenth, the twenty-eighth, and the forty-second. Whoever carefully observes the phenomena of disease, as described by these ancient authorities, will see an aphorism of Prof. J. J. Jones verified: That all diseases are more or less periodic. Following the doctrine of crisis is that of the four elements, Heat, Cold, Dryness and Moisture; and the four cardinal humors, blood, bile, atra-bile, and phlegm.

Empedocles was the first to introduce this doctrine of the elements. He says the human body is composed of blood, phlegm, and two sorts of bile—yellow and black; and that their condition determines the state of health; that perfect health consists in a due proportion of each; that disease is caused by an excess of any one of these, or if any one lacks its due proportion, or is evacuated without being properly mixed—for when it is thus evacuated, they claim that not only the region where the admixture took place must be affected, but the organ, through which it passed off, must suffer and become diseased. Another theory of those times was, that all disease was caused by cold, which they explained as follows:—Colds cause the condensation of the tissues and veins of the head; if the cold strikes them when they are heated, they contract, and the humors contained in them are expelled. All the tissues are obliged to pour out their fluids when they contract.

Fluxions are also caused by the tissues becoming heated, which rarefies them, enlarges their pores; the humors they contain are attenuated, so that it flows easily when compressed. This theory of fluxions is regarded as being anterior to Hippocrates. For a long time after Hippocrates, we have no writings from which we can learn any progress in the practical resources of the profession. From all we can gather, it would seem that little, if any, progress was made in the principles or practice of medicine for many centuries. Herophilus is mentioned by some as a reformer in medicine, and as having introduced quite a large number of medicines; but what they were, history fails

to tell us. Dioscorides states that the medicines used by him had the power to dissolve stone in the bladder; to consume the spleen; to prevent conception in females; of making children black-eyed, &c.; also, that they would prevent the various manifestations of mental emotions and passions. The *modus operandi* of medicines, as explained by the ancients, was that they acted upon the system according to the degree of heat or cold, dryness or moisture, of the system. A principle not very dissimilar to that advocated by the modern Samuel Thomson, which was that heat was life, and cold was death; and that medicines acted beneficially or otherwise, according to the degree of heat they contained.

Ætius, who lived at the commencement of the sixth century, and was the first physician of eminence who embraced the Christian religion, dispensed with most of the ceremonies, magic and incantations, that originated in the Æsculapian school; but instituted others almost equally superstitious. In his directions to use certain medicines, he recommended that the following words be repeated in a low voice: May the God of Abraham, the God of Isaac, the God of Jacob, deign to bestow upon this medicine the necessary virtues, &c. In extracting a foreign substance from any part of the system, he recommends, in connection with proper means used, the following words: As Jesus Christ caused Lazarus to come forth from the sepulchre, as Jonah came out of the whale's belly, come thou out. In his practice he made free use of the cautery, and introduced a number of new ointments. He also claimed to have introduced to the *materia medica* several new remedies, but did not tell us what they were. His principles of practice were the same as his predecessors.

Rhazes, an Arabian physician, although a strict imitator of the Greek practice, offered one or two suggestions worthy of remembrance. Among other considerations, he says: "study carefully the antecedents of the man to whose care you propose to confide all you hold most dear in the world—that is to say, your life and health, and the life and health of your wife and children. If the man is dissipating his time in frivolous pleasures; if he cultivates with too much zeal the arts that are foreign to the profession, such as music and poetry; still more if he



is addicted to debauchery, refrain from committing into his hands a trust so precious."

Hally-Abas, Avicenna, and Albucasis, were also Arabian physicians of some note, and lived in the eleventh and twelfth centuries. They added to the resources of the Greeks several articles of some value, such as cassia, senna, and manna. They also added several ointments and syrups to the pharmacy. In the principles of treating diseases, however, they made but little, if any, advancement.

On examining the progress in the principles and practice of medicine, from its commencement to the close of the seventeenth century, we find that the principal improvements were made by the descendants of Æsculapius, Hippocrates and Galen; that the Arabians, Turks, and Jews, did little, if any thing, more than teach it as it had been taught by Hippocrates. Even after the discovery of the art of printing by Guttenberg and others, in 1424, physicians appeared to be entirely satisfied in translating the writings of ancient authors, and in commenting upon what, it would appear, they thought a fixed science.

In the year 1700, John Fernel, who wrote quite extensively upon the materia medica, re-examined the therapeutic axiom of Hippocrates, that all diseases are cured by contraries. He stated that every disease must be cured by contraries; for, says he, "a remedy is that which can drive out a disease, and that which drives acts violently. That which uses violence is in opposition, therefore the remedy is always opposed to the disease, and no healing can take place except in virtue of the law of contraries. We call contraries not only those things which are endowed with opposite elementary qualities, heat and cold, dry and wet, but also things which differ among themselves in any way, as to quantity, number, quality, &c. Thus the hard and the soft, the dense and the diffuse, the great and the small, that which is in excess and that which is deficient; the high and the low, the pure and the impure, are all examples of contraries. These are the views of Fernel relative to the therapeutic action of medicine, although he carried them further than Hippocrates and Galen, and entirely rejected their experimental knowledge of therapeutics, and claims the law of contraries to be impossible.

Paracelsus, a native of Einsiedeln, a village of Switzerland, lived in the latter part of the sixteenth century, and although a man of neither integrity of purpose, nor stability of character, obtained almost universal sway over the medical profession. He claimed to have made great discoveries in therapeutics and pathology. He stated that the human body, like the great world of which it is an image, is composed of four elements, fire, air, earth and water. The fire in man is the soul; the earth is represented by the dry parts; the water by the liquids; the air by the vacuum. These four elements cause disease. But if we leave this high analysis to get at the more immediate elements, the body of man is composed of mercury, the liquor of sulphur and salt. And now we see how this is demonstrated by alchemy. There are, in the first place, in the body liquids; these are the mercury; then the solids, which may be burnt; the portion which burns is sulphur, while the residue or the ashes is salt. It can hardly be imagined how a man can embody, in so few words, such an amount of ignorance, and, what is still more wonderful, is, that a system, thus founded in the grossest ignorance, should exert such an influence on the medical profession. The additional element of mercury, which he added to the four elements of the ancients, enabled him to found a new system of therapeutics, and in a measure to introduce new principles of cure. Mercury, he tells us, being in close relation to ordinary quicksilver, produces, by its volatility, many affections of the ligaments, as tremblings, &c. If it becomes excessive, or if it be joined to acrimony, mania, phrenzy and madness occur. On the contrary, if the mercury is chilled, it causes trembling of the hands and feet, lethargy, erosions of the mouth, &c. Sulphur causes various kinds of fevers, jaundice, &c. Salt causes gravel, gout, sciatica, and, when it becomes dissolved, it causes diarrhoea; if it coagulates, constipation; if it volatilizes too soon, it causes ulcers, itch, erysipelas, cancers, herpes, &c. For the purpose of removing all these diseases, he introduced into the system antimony, gold, mercury, copper, and some other metals. He discarded many of the remedies of Hippocrates as being ineffectual and unable to control the elements of the body, and pretended the principle upon which mercury removed disease from the body was a profound secret, peculiar to himself. It



was a combination of these metals which composed what he called his *elixir vitæ*, or universal remedy for all diseases. One attempt which he made to explain the *modus operandi* of his medicines, will suffice to show his entire ignorance upon the subject. It was as follows:—"As antimony purges gold only, and consumes all other metals, it is the proper agent to purge the human body, and no other; for in regard to perfection and forces, man has a great similitude to gold; whence it follows, that antimony brings man and gold to a supreme degree of perfection and purity, while it destroys, consumes and exempts every thing else. The nature of antimony is a purgative, though it does not produce evacuation of fæces and other excrements; but, above all other remedies, which act insensibly, it drives out that which renders man impure, and having purged the cause of disease, brings him to a supreme degree of health." It will readily be perceived from the above quotation, that in the administration of medicine, he was guided for less by correct principles than his predecessors in the profession. Paracelsus was the first physician who used mercury and the other violent mineral poisons. Andrew Libanius, a physician, chemist and director of the gymnasium at Cobourg, and cotemporary of Paracelsus, informs us that the latter cured very few of his patients; that he killed a great many, and that many others were horribly tortured by the use of his medicaments. As ignorant and unskillful as was Paracelsus, he is the founder of the present system of Allopathy; and the very remedies of which he composed his quack *elixir*, are still insisted upon as being the almost universal panacea for bodily ills. It is true that men, eminent in the profession, have labored for a more rational system of practice; have minutely investigated the cause and nature of disease, and have very materially improved the condition of pathology. But notwithstanding all this, it must be acknowledged that their therapeutic resources are essentially the same as those of Hippocrates and Paracelsus. By referring to the compendium of Dr. Eberle's Practice, in another part of this work, we can learn what the resources of the Allopathic portion of the profession are. To be sure, every article is not there enumerated which has been recommended by that branch of the profession; but, he being a late author, and having enjoyed the confidence of the profes-

sion as such for nearly a quarter of a century, it is probable he as fairly represents his party in medicine as any author I could select. According to all their authors, bleeding, blistering, mercury, antimony, &c., are their principal therapeutic resources. With these are they successful in accomplishing the only purpose for which medicine is cultivated?—that of healing disease. The first of these resources, in order, is bleeding. Is bleeding of service in the treatment of disease? Is it productive of more good than evil? These are questions which should be solved before venturing upon so active a measure in changing the normal condition of the human organism.

To assist us in the solution of this question, we may first inquire, what are the purposes of the blood? what part does it perform in the economy of human life. Scripture tells us that the blood is the life of the flesh. Physiology tells us that the blood is the histogenic material, out of which all the organs of the body are formed, and by which they maintain their normal integrity. Pathology, still further, informs us that a large majority of all disease that afflicts the human family is dependent upon, or is caused by, a deficiency in the whole, or in certain constituents of the blood. Physiological pathology informs us that the blood is a medium through which all the disintegrated or waste portions of the old tissue are removed from the body; that it watches diligently over every tissue, and carefully supplies every deficiency. Still the question is, does it remove disease? What are the facts? The following remarks of Dr. Samuel Dickson, formerly an officer of the British staff, now of London, will show some facts upon the utility of blood-letting in the treatment of disease. "A medical officer of one of her majesty's regiments, serving in India, couched a woman for cataract. The next day the eye having become inflamed, according to received practice, he bled the patient; but scarcely had he bound up her arm, when she fell as if she had been shot, and lay, to all appearance, dead; with the greatest difficulty he succeeded in recovering her from this state; but it was not till four long hours had passed that he felt he could safely leave her with attendants; for during the greater part of that time, when he ceased to chafe her temples, or otherwise call up the attention of the brain, by the application of stimulants to the nose, mouth,

&c., she relapsed into a death-like swoon. More than once he was obliged to inflate her lungs to keep her from dying. But in this case, gentlemen, blood-letting did not cure the inflammation; for the next day the eye was more painful and inflamed than ever, and the poor woman, after all the blood she had lost, — and who will say that she was not bled? — did not recover her sight. It is now many years since that case came under my sight, and it made an impression on my mind I shall never forget. Had the woman died, would not every one have said that the gentleman who bled her had killed her? and very justly, too.”

“Religion, Freedom, Vengeance, what you will,  
A word’s enough to raise mankind, to *kill* —  
Some *party*-phrase by *cunning* caught, and spread,  
That GUILT may reign, and WOLVES, and worms be fed.”

“The first resource of the surgeon is the lancet — the first thing he thinks of when called to an accident, is, how he can most quickly open the flood-gates of the heart, to pour out the stream of an *already enfeebled* existence. Does a man fall from his horse, or a height, is he not instantly bled? has he been stunned by a blow, is not the lancet in requisition? Nay, has an individual fainted from over-exertion or exhaustion, is it not a case of *fits* — and what so proper as venesection? You cannot have forgotten the fate of Malibran — the inimitable Malibran; she who so often, by her varied and admirable performances, moved you to tears and smiles, by turns. She was playing her part upon the stage; she entered into it with the whole of her soul, riveting the audience to the spot by the very intensity of her acting. Just as she had taxed the powers of her too delicate frame to the utmost, she fainted and fell; fell from very weakness. Instantly a medical man leapt upon the stage, — to administer a cordial? No, to bleed her! to bleed a weak, worn, and exhausted woman! and the result? She never rallied from that unfortunate hour. But, gentlemen, Malibran was not the only intellectual person of the thousands and tens of thousands who have prematurely perished by the lancet. Byron and Scott, those master-spirits of their age — those great men, who, like Ariosto and Shakspeare, not only excited the admiration of cotemporary millions, but whose genius must continue, for gen-

erations yet unborn, to delight the land that produced them — they, too, fell victims to the lancet — they, too, were destroyed by the hands, which, however friendly and well-intentioned, most undoubtedly dealt them their death-blow. Is not this a subject for deep reflection? To the cases of these great men we shall recur in the course of this lecture; but, for the present, we must turn to other matters — to events that have just passed before our eyes. The affair of Newport, in Wales, is still the topic of the hour. You must therefore remember it to its minutest detail — the attack of the rioters upon the town; the gallant and successful stand made by Capt. Gray and his little detachment of the 35th regiment — the prisoners captured and the investigation which took place afterwards. In the course of that examination a prisoner, who was under examination, *fainted*. What was done with him? he was carried out of court and immediately BLED. On his return an extraordinary change had come over his countenance; from being a man of robust appearance, he had become so wan and haggard, so altered in every lineament, the spectators could scarcely recognize him as the same prisoner. Yet, strange to say, not one of the many journals that reported this case, spoke a word in condemnation of the uncalled-for measure which brought the man to such a state; so much has *custom* blunted the sense of the public to this, the most dangerous of all medical appliances.

Gentlemen, a coroner's inquest was held on a person who died suddenly. Mr. —, surgeon, stated that he was called upon to attend deceased, and found him *at the point of death*. He attempted to bleed him, but ineffectually, and in less than a minute from witness' arrival, deceased expired. Witness not being able to give any opinion as to the cause of death from the symptoms that then exhibited themselves, he afterwards, with the assistance of Dr. Ridge, 37 Cavendish Square, made a post-mortem examination, and found that a large tumour, attached to a large vessel of the heart, containing blood, had bursted, and that was the cause of his death. So that, while the man was actually dying of inanition from internal bleeding, the surgeon, utterly ignorant, according to his own confession, of the nature of the disease, proceeded to open a vein. How happens it that the lancet should be so invariably the first resort of IGNORANCE.

“In every case of *stun* or *faint*, the employment of this instrument must be a superadded injury; in all, there is a positive enfeeblement of the whole frame, evidenced by the cold surface and weak but imperceptible pulse; there is an exhaustion, which loss of blood, so far from relieving, too often converts into a state of utter prostration. True, men recover when treated in this manner—but these are not *cures*, they are *escapes*. How few the diseases which loss of blood may not of itself produce! if it cannot cause the eruptions of small-pox, nor the glandular swellings of plague, it has given rise to disorders more immediately fatal than either. What think you of cholera asphyxia—Asiatic cholera? Gentlemen, the symptoms of that disease are the symptoms of a person bleeding slowly away from life. The vomiting, the cramps, the sighing, the long gasp for breath, the leaden and livid countenance which the painter gives to the dying in his battle-pieces; these are equally the symptoms of cholera and loss of blood. Among the numerous diseases which it can produce, Darwin says, ‘a paroxysm of *gout* is liable to recur on bleeding.’ John Hunter mentions ‘lock-jaw and dropsy’ among its injurious effects—Travers, ‘blindness and palsy’—Marshall Hall, ‘mania’—Blundell, ‘dysentery’—Broussais, ‘fever and convulsions.’ ‘When an animal loses a considerable quantity of blood,’ says John Hunter, ‘the heart increases in its frequency of strokes, as also in its *violence*.’ Yet these are the indications for which professors tell you to bleed. You must bleed in every inflammation, they tell you. Yet is not inflammation the daily effect of the loss of blood? Magendie mentions pneumonia as having been produced by it, completely confirming the evidence of Dr. Hume upon that point. He further tells us, that he has witnessed among its effects the entire trains of what people are pleased to call *inflammatory* phenomena; and mark, he says, the extraordinary fact, that this inflammation will have been produced by the very agent that is daily used to combat it! What a long dream of false security have mankind been dreaming! they have laid themselves down on the laps of their Mentors,—they have slept a long sleep; while these, like the fabled vampire of the poets, taking advantage of a dark night of barbarism and ignorance, have thought it no sin to rob them of their life’s blood during

the profoundness of their slumber! Gentlemen, the long shiver of the severest ague, the burning fever, the severest lock-jaws, the vomiting, cramps, and asphyxia of cholera, the spasm of asthma and epilepsy, the pains of rheumatism, the palpitating and tumultuous heart, the most settled melancholy and madness, dysentery, consumption, every species of palsy, the faint that becomes death, these — all these — have I traced to the loss of blood!

“ Lord Byron called medicine the DESTRUCTIVE art of healing. How truly it proved to be so in his own case, you shall see when I give you the details of his last illness: — ‘Of all his prejudices,’ says Mr. Moore, ‘he declared the strongest was that against bleeding. His mother had obtained from him a promise never to consent to be bled; and, whatever arguments might be produced, his aversion, he said, was stronger than reason. Besides, is it not, he asked, asserted by Dr. Reid, that less slaughter is effected by the lance than by the lancet — that minute instrument of mighty mischief!’ On Mr. Millingen observing that this remark related to the treatment of the nervous, but not of inflammatory complaints, he rejoined, in an angry tone, ‘Who is nervous if I am not? and do not those other words of his (Dr. Reid’s) apply to my case, where he says that drawing blood from a nervous patient, is like loosening the cords of a musical instrument — whose tones already fail for want of sufficient tension! Even before this illness, you yourself knew how weak and irritable I had become; and bleeding, by increasing this state, will inevitably kill me. Do with me what else you like, but bleed me you shall *not*. I have had several inflammatory fevers in my life, and at an age when robust and plethoric; *yet I got through them without bleeding*. This time, also, will I take my chance.’ After much reasoning and repeated entreaties, Mr. Millingen succeeded in obtaining from him a promise, that should he feel his fever increase at night, he would allow Dr. Bruno to bleed him. On revisiting the patient early next morning, Mr. Millingen learned from him that, having passed on the whole, as he thought, a better night, he had not thought it necessary to ask Dr. Bruno to bleed him. What followed I shall, in justice to Mr. Millingen, give in his own words: ‘I thought it my duty now to put aside all consideration of his feelings,



and to declare, solemnly, to him how deeply I lamented to see him trifle thus with his life, and show so little resolution. His pertinacious refusal had already, I said, caused much precious time to be lost; but few hours of hope now remained; and, unless he submitted immediately to be bled, we could not answer for the consequences. It was true he cared not for life, but who could assure him that, unless he changed his resolution, the uncontrolled disease might operate such disorganization in his system as utterly and forever deprive him of reason! I had now hit at last on the sensible chord; and partly annoyed by our importunities, partly persuaded, he cast at us both the fiercest glance of vexation, and throwing out his arm said, in the angriest tone, 'There you are, I see, a d—d set of butchers, take away as much blood as you like, but have done with it!' We seized the moment (adds Mr. Millingen), and drew about twenty ounces. On coagulation, it presented a strong buffy coat, yet the relief obtained did not correspond to the hopes we had formed, and during the night the fever became stronger than *it had been hitherto*, the restlessness and agitation increased, and the patient spoke several times in an incoherent manner. Surely this was sufficient to convince the most school-bound of the worse than inoperative nature of the measure. Far from it. On the following morning, the 17th of April, the bleeding was repeated twice, and it was thought right also to apply blisters to the soles of his feet! Well might Mr. Moore exclaim, 'It is painful to dwell on such details.' For our present purpose it is sufficient to state, that although the rheumatic symptoms had been completely removed, it was at the expense of the patient's life. His death took place upon the 19th, that is, three days after he was first bled.

"M. Capeman, in 1845, gives the statistics of the bleeding and non-bleeding practice in apoplexy. 'In 1836, when I first repudiated the lancet in this disease, the statistics were all on one side, the only cases of the non-bleeding side of the argument being my own.' The following is from Mr. Capeman's table:

Number bled.....	120	..... Cured.....	51	..... Died.....	78
Number not bled.....	26	..... Cured.....	18	..... Died.....	8

Showing that, in the cases where bleeding was practised, nearly

two out of three died; whereas, in the cases treated without blood-letting, more than two out of three recovered! What is the worth of general assertions in the face of such evidence?

"In the army hospitals I had an opportunity of studying disease both at home and abroad. There I saw the fine tall soldier bled, for relief of a symptom, to fainting; and what is fainting? A loss of every organic perception—a death-like state, only differing from death in the possibility of a recall. Prolong it to permanency and it is death. Primary symptoms were, of course, got over by such measures; but once having entered the hospital walls, I found that soldier become familiar to me; seldom did his pale countenance recover its former healthy character. He became the victim of consumption, dropsy, or dysentery. His constitution was broken by the first depletory measures to which he had been subjected."

In connection with these cases, reported by Dr. Dickson, we might mention that of our own Washington, who, after escaping the perils of war with its engines of death, fell a victim to the lancet. He was attacked with quinsy—bled to an enormous extent, three times within a few days, and died with all the characteristic symptoms of fatal hemorrhage.

Andral recently reported one hundred cases of pneumonia treated by blood-letting; one hundred treated by antimony and mercury, and one hundred by diet and rest. Of the cases treated by blood-letting, 27 died; of those treated by antimony and mercury, 21 died; by diet and rest, 7 died.

To the candid and impartial observer of facts, the general fatality accompanying this practice is conclusive on this point. Within my own experience I could enumerate hundreds who, while in the bloom of health, upon some trifling ailment have submitted themselves to be bled, and thus offered up their lives upon the altar of this murderous practice. These are a few among the many facts which lead us to condemn the use of the lancet. Another therapeutic agent in the allopathic materia medica which we reject, is mercury with all its preparations; for ample experience has shown, that the allopathic axiom, that medicines which will produce one train of morbid phenomena, will remove an already existing disease, is not successful in combating disease; but, on the contrary, has greatly enlarged



the bills of mortality, and increased the amount of human suffering. It is not true that two diseases will not manifest themselves in the human organism at the same time, as common observation will show. It is true that while patients are laboring under the specific influence of mercury, they, at the same time, suffer from the ravages of other morbid influences equally disastrous to the life and health of the patient. Nothing is more common than to see patients die of idiopathic fevers, syphilis, small-pox, phthisis, pneumonia, pleurisy, inflammation of the brain, stomach, bowels, &c., while under the specific influences of mercury. Statistics show that a much larger portion die, when thus treated, than when left to the unaided efforts of nature. This fact was fully appreciated by Lord Byron after recovering from a very severe attack of fever. He stated that after a week of half delirium, burning skin, hot headache, horrible sensations, and no sleep, by the blessing of barley-water, and refusing to see his physician, he recovered.

Lord Byron was not the only one who realized the inefficiency of the allopathic method of treating disease. A large majority of the most intelligent people have felt, for the last two-thirds of a century, the importance of an entire revolution in our therapeutic resources. The following are the preparations of mercury most in use:

The blue-pill, which is a preparation of quicksilver, rose-leaves and honey.

Bichloride of mercury, or corrosive sublimate.

Chloride of mercury, or Calomel.

Ammonio-chloride of mercury, or White Precipitate.

Red Oxide of mercury, or Red Precipitate.

Bicyanide of mercury.

Sub-sulphate of Peroxide of mercury.

Nitrates of mercury.

Iodide of mercury.

The symptoms of large doses of Bichloride of mercury, as described by Taylor in his Medical Jurisprudence, page 87, are nausea, with vomiting of long stringy masses of white mucus, mixed with blood, followed by profuse purging.

The pulse is small, frequent, and irregular, being scarcely perceptible as the disease advances. The tongue is white and

shriveled, the skin is cold and clammy, the respiration difficult, and death is commonly preceded by fainting, convulsions, and insensibility. The mouth is swollen and the urine is suppressed. The symptoms produced by corrosive sublimate, in the first instance, resemble cholera. The quantity necessary to destroy life, according to Taylor, is from three to five grains.

Chloride of mercury, or calomel, is poisonous in doses similar to corrosive sublimate. A case is reported in the Medical Gazette (18 vol., p. 484), in which a boy, aged fourteen, was killed by one dose of six grains of calomel.

It is stated, by Mr. Taylor, that no salivation was produced in this case. Pereira mentions a case of a lady who was killed by a dose of twenty grains of calomel. Sobernheim states that a girl, aged eleven, took eight grains of calomel in twenty-four hours, for croup, and died in eight days from inflammation and ulceration of the mouth and fauces.

Dr. Taylor mentions a case, which occurred at Lesser, where fifteen grains of calomel produced similar effects, and the patient died in eight days. Dr. Christian mentions a case in which two grains of calomel destroyed life by the severe salivation induced, as well as by the ulceration of the throat. Taylor, in his Medical Jurisprudence, page 80, mentions a case, where two-thirds of a grain of calomel was given to a boy, aged eight years, producing violent salivation and necrosis of the bones.

In another instance, a little girl, aged five, took daily, for three days, three grains of mercury and chalk-powder. Her mouth was severely affected; sloughing ensued, and she died in eight days. In a third case, a boy, aged eleven years, took three doses of this powder — one of six grains on the 14th, a similar dose on the 17th, and four grains on the 20th, making altogether sixteen grains. The most profuse salivation ensued, sloughing commenced in both cheeks and rapidly extended through them. The boy died in four days. Previously to the exhibition of the mercury he had recovered from an attack of fever. In a fourth case, three grains of blue pill, given twice a day, for three days, making eighteen grains, were ordered for a girl, aged nineteen, who complained of a slight pain in her abdomen. Severe salivation supervened, the teeth separated, and she died in twelve days. Dr. Craigie says the great objection to the employment

of any preparation of quicksilver in the cure of renal disease, consists in the fact, that the use of the mineral is known to render the urine albuminous, to increase the inflammatory state of the system, and to induce the disease, the effects of which, it is expected, to remove. Another evil is that, in persons laboring under symptoms of granular kidney, a very small quantity of mercury induces salivation, and renders the mouth tender and most painful. (Practice of Physic, ii., 1148.)

Prof. Z. Freeman reports a case, in the August number of the Eclectic Medical Journal, 1854, p. 345, of a girl who took calomel and jalap for a cathartic. It was followed by severe salivation, gangrene and necrosis of the jaw bone. He states, that himself and Dr. Newton took from the jaw four pieces of bone, each over an inch in length and three-fourths of an inch in thickness, including a number of teeth. The jaw was ankylosed and the mercurial bone fœtor was very offensive in this case. He mentions another case which came before him while he was lecturing in Memphis, in which the jaw was necrosed, and the features horribly mutilated, as the effects of mercury. I knew a case of a lady, treated by a homœopathic physician for remittent fever, who took corrosive sublimate, as admitted by the physician, one grain a day, for three days, producing violent salivation and ulceration of the mouth, with a strong tendency to gangrene, followed by persistent vomiting, prostration, and death in the course of five or six weeks. Upon making a post-mortem examination, the mucous membrane of the stomach, and upper portion of the bowels, were found entirely disorganized by the effects of the mercury.

Dr. Norris, surgeon in the Pennsylvania Hospital, stated, in a recent clinic, that he had not prescribed mercury in cases of syphilis for the last twenty years, and that patients did much better than before. Dr. Dick, of Calcutta, states, in a letter to Dr. Sanders, that chronic liver attacks frequently follow the long continued use of mercury. Dr. Nichols, surgeon in the British army in India, states that most of the soldiers, who were treated for venereal disease with mercury, were exceedingly liable to inflammation of the liver. Dr. M. Dessuelles, that from his experience in the treatment of one thousand three hundred and twelve cases of primitive and secondary syphilis without mer-

cury, that the average duration of the disease was only thirty-two days, while those treated with mercury were not only subject to a much longer period of the disease, but a far less number recovered. Prof. J. G. Jones stated, in his lectures, that he had not used a grain of mercury for twenty years. And it is well known that he treated every variety of disease with almost uniform success.

Dr. Pulte, in his *Homœopathic Domestic Physician*, states that mercury causes the following diseases and symptoms. Hence he recommends it to cure the same, upon the principle described by Shakspeare.

“Tut, man ! one fire burns out, another’s burning ;  
 One pain is lessened by another’s anguish :  
 Turn *giddy* and be helped by *backward turning* ;  
 One desperate grief cures with another’s languish ;  
 Take thou some new infection to thine eye,  
 And the rank poison of the old will die.”

Swelling and inflammation of the glands ; inflammatory fevers, with disposition to perspire profusely ; rheumatic, or catarrhal headache ; serofulous rheumatic ophthalmia ; syphilitic ophthalmia ; rheumatic prosopalgia and tooth-ache ; dysentery ; mucous or bilious diarrhœa ; influenza.

Symptoms : — Enlargement, inflammation, and ulceration of the glands, with pulsative and shooting pains.

Copious and colliquative sweats.

Vertigo, principally on getting up.

Itching, tickling and burning in the eyes.

Tearing, stinging and drawing pains in the ears.

Bloatedness and swelling of the face.

Tearing, stinging, or pulsative pains in the carious teeth.

Putrid smell from the mouth.

Stinging pains in the throat and tonsils, principally when swallowing.

Acid and mucous taste ; dislike to all food.

Violent empty eructations ; excessive tenderness of the stomach and precordial region.

Loose and dysenteric evacuations.

Frequent, copious emissions of urine, like diabetes.

Catarrh, with febrile shivering.

Difficulty of respiration, with attacks of suffocation at night.  
Obstructions and inflammatory swellings of the glands of the neck.

Sharp pains in the shoulders and arms.

Sharp and piercing pains in the hip-joints.

We have given some of the reasons why we reject the use of mercury and all its preparations in the treatment of disease. We urge the same objections against the medicinal use of copper, antimony, arsenic, lead, zinc, tin, in short, against all minerals not found as a component part of the organic structure of the human body. And if our limits would permit, we could produce an array of facts, proving, beyond a reasonable doubt, that the use of all these mineral substances is absolutely disastrous to health and life. The mineral substances, which are constituents of the human organism, and can be used with benefit in the treatment of disease, are the following: \*

Lime, or its base, calcium, is combined with the carbonic or phosphoric acid, in the bones and teeth.

Magnesia, in the sebaceous matter of the skin.

Alumina, in the enamel of the teeth.

And iron in the black pigment of the various parts, and in the blood.

Metallic bases of earth: — Calcium, magnesium, silicium, aluminum.

Phosphorus, sulphur, chlorine, and fluorine.

Metals; iron, manganese, titanium.

Water, found universally, composed of hydrogen and oxygen.

Carbonic acid, found in urine, blood, and sweat.

Carbonates, or salts of carbonic acid and a base.

Carbonate of soda, in serum, bile, mucus, sweat, saliva, tears, cartilage, &c.

Carbonate of lime, in cartilage, bone and teeth.

Carbonate of magnesia, in the sebaceous matter of the skin.

Phosphate of soda, in serum, saliva, in sweat, bones, muscles, &c.

Phosphate of lime, in bones, teeth, cartilage, and the sandy concretions of the pineal gland.

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\* Wilson's Histology.

Phosphate of soda and ammonia, in urine and blood; but probably only for the purpose of being excreted or thrown off as unfit to constitute a part of the animal body.

Phosphate of iron, in blood, gastric juice, and urine.

*Chlorine and its compounds:—*

Hydrochloric acid, in gastric juice and in the fluid of the cæcum.

Chloride of sodium, in blood, brain, bone, muscle, cartilage, pigment, and gastric juice.

Chloride of potassium, in blood, gastric juice, milk and saliva.

Chloride of ammonium, in sweat and gastric juice.

Chloride of calcium, in gastric juice.

*Sulphuric acid and its compounds:—*

Sulphate of potassa, in urine, gastric juice, and cartilage.

Sulphate of soda, in sweat, bile, and cartilage.

Sulphate of lime, in bile, hair, and cuticle.

Sulpho-cyanide of potassium, in the saliva.

Fluoride of calcium, in the enamel of the teeth.

Silica and oxide of manganese, in the hair.

Alumina, in the enamel of the teeth.

Oxide of iron, in blood, black pigment, lens and hair.

Oxide of titanium, in the capsulæ renales.

The above minerals, and their compounds, being constituents of the animal organism, necessarily play an important part in the great drama of organic life; and disease of any of the tissues may, and frequently does occur, from a deficiency of some of the elements of the parts. The blood may become diseased from a deficiency of iron, sodium, or potassium; in this case a proper administration of these articles may be beneficial. A lack of sulphur and soda in the system may cause a deficiency of bile; in which case a supply of them may restore the liver to its normal condition, and the bile to its natural quantity. Thus while all minerals, which constitute a part of the organic structure, not only become assimilated and assist in restoring the abnormal conditions of the system to a healthy state—all minerals which do not enter into the organization of any of the various tissues, when introduced into the system, act as foreign agents, and prove a constant source of irritation, disease and death. Having hinted at what we conceive to be some of the



facts relative to the past and present condition of Medicine, we now proceed more directly to consider some of the principles which guide the great American movement for the reform of the medical profession.

1st. A determined effort to ascertain more precisely than has been done hitherto the natural cause and events of diseases. Or, in other words, the fatality of disease when left to the unaided efforts of nature.

2nd. A determination to understand more fully the *modus operandi* of medicines, and to ascertain their real curative powers.

3rd. To continue our researches in the vegetable, mineral and animal kingdoms for the purpose of developing resources for the removal of disease.

4th. To introduce into the profession a spirit of liberality and progression; to dispense with all creeds and cliques, and to overcome all party prejudice among the different members of the profession.

5th. That it is the duty of every physician to investigate each system of medicine, and make its valuable resources available for the relief of the sick.

6th. That both science and experience have demonstrated that the use of mercury, lead, zinc, arsenic, and the entire catalogue of minerals, incompatible with the organic tissues, is a fruitful source of disease, and dangerous to life.

7th. That blood-letting is one of those dangerous practices, which experience has found to be positively injurious in all cases.

8th. That the pharmaceutical method of compounding a great variety of medicines into syrups, powders, pills, &c., not only prevents the physician from ascertaining their real curative powers, but the action of each is frequently neutralized, and the object defeated for which it was given.

9th. That it is far better to leave the disease to the unaided efforts of nature, than attempt to remove it with medicine, unless its indications are demonstrated by observation and science.

10th. That investigation and research into the nature and cause of disease should be encouraged, and all new facts relative to medical science should receive due attention.



11th. That neither Allopathy, Homœopathy, nor Hydropathy, as an exclusive system of medicine, has arrived at any considerable degree of perfection, as shown by the fact that neither very materially lessens the natural fatality of disease; although, occasionally, each of these may prove successful, as shown by the power of cold water to allay inflammation, which is Hydropathy; by nitrate of silver for aphthæ of the mouth, which is Allopathy; or by rhubarb for diarrhœa, which is Homœopathy. Each of these systems of medication being occasionally applicable in removing disease, they should be understood by the physician, and adopted as indicated.

12th. To discourage, by every honorable means, the baneful practice of constant drugging for all trifling diseases.

13th. To investigate and adopt the physiological and hygienic methods of curing and preventing disease by a proper regulation of the diet, temperature and purity of the air, by bathing, friction, proper clothing, occupation, mental and physical training, &c.

14th. That the practice of physicians, of spending their time in idle conversation, electioneering and otherwise, in pursuits foreign to the profession, disqualifies them for practice; and that, to be a skilful physician, the whole energies of body and mind should be devoted to the profession.

15th. To avoid adopting any set of dogmas in medicine as infallible; bearing in mind, that a constant change of opinion relative to the fundamental practical principles of the art, shows that what men supposed to be true at one time, have been proved to be entirely erroneous at another, and that the only means of advancing medicine to the rank of an exact science, is by the constant rejection of old errors and the reception of new and well-attested truths.

16th. To combine the two extremes of the profession — the ultra-conservative and the fanatical reformer. As conservatives, we would pay due respect to the labors and discoveries of our predecessors in the profession, and adhere with commendable zeal and dignity to those doctrines which long usage, and extensive experience and science have demonstrated to be true. As reformers, we would extend our researches in every direction which promises accession to the already existing stock of medical knowledge,

paying no homage to the aristocracy and learned pedantry of the profession, only so far as it has contributed to the advancement of science. Finally, that we adopt and adhere to the facts of the conservative, and enter into the labors of the reformer, with equal cordiality.

17th. To use every practical means to inform the public upon the subject of medicine in all its departments, that they may understand the true merits of the different systems of medicine, and be prevented from trusting their lives and health in the hands of men ignorant of the principles and practice of the profession.

18th. To cultivate the spirit of true Eclecticisim, liberality and progression; and to show the positive necessity that every physician or student of medicine, who would acquit himself with honor and with fidelity to his practice, should not only pass through the ordinary and preliminary course of study, but that his whole time and attention should be devoted to the investigation of all the therapeutic resources of every school of the profession, selecting from each that which science and experience has proved beneficial in the treatment of disease.

It will be seen from the foregoing, that the principles laid down as the basis of the American Medical Reform, cover every department of the science. That they propose to annihilate the boundaries of party limits; to break the shackles which bind the conservative to his dogma; to reinvestigate existing symptoms of medicine, and study anew all the laws of life and health; to ascertain to what extent health may be promoted and disease prevented. This is the work which has been commenced by American Medical Reformers, and to the completion of which, they will consecrate their future labors. They desire to establish a practice based upon scientific principles and inductive experience. They claim that, as a man is composed of the common elements of matter, that to understand his organism in its physiological, pathological and therapeutical relations, is to understand his material structure and forms, with their various movements and forces, and cause of forces, which necessarily includes an intimate knowledge of the great branches of Physical Science, vegetable, animal, and mineral, with all the laws and forces which control them, as electrical, magnetical, chemi-

*Justus*

cal, dynamical, and physiological or organical. The fallacies of all former doctrines in medicine have, in a great measure, arisen from a want of this important knowledge. The allopathist, in establishing his system of medication, that all diseases are cured by medicines that alter or change the structure or physiological forces of diseased parts, entirely omitted the chemical, organic and vital dependencies of matter, as the very disease which he intends to remove, by altering the organic tissue, may depend upon deficiency of carbon, nitrogen, hydrogen or oxygen. As these substances alone possess the power of combining and forming the basis of all the elementary tissues, a deficiency of either of these elements may give rise to a series of pathological changes that no allopathic alterative could overcome, the only remedy being to introduce into the diseased organism its original elements.

Suppose the gastric fluid to be imperfect, as it frequently is, owing to a deficiency of oxygen to unite with the chyle and blood, out of which it is formed. Any attempt to re-establish the normal quantity by alteratives would prove as effectual as an attempt to reorganize water, after the oxygen is set free, by adding alteratives. A deficiency of the carbonates may cause a disease of the liver, lungs, cartilage, bones or muscles. It is a fact that carbon, united with soda, constitutes a large portion of bile; that, combined with lime, it forms one of the elements of the teeth, bone, &c.; that it unites with oxygen in the lungs to maintain animal temperature. Let us inquire, of the allopathist, how many doses of mercury, how much alterative influence, from bleeding and blistering, will compensate for this deficiency. It must be borne in mind that the human system is an extensive organic chemical laboratory, in which is manufactured germ-cells, epithelium, mucus, muscle, nerves, brain, gastric juice, saliva, chyme, chyle, blood, lymph, tears, hair, nails, cuticle, cartilage, bone, &c. The object of this extensive manufactory is to furnish material for the constant demand made by the human body, that it may maintain its integrity and perpetuity. This constant demand arises from the fact, that not only all the inorganic, but the organic elements, which come in contact with the human organism, tend to unite with it and form new compounds, structures and forces, thereby disturbing the natural

relations and dependencies of the human organism upon its organic elements, causing disintegration and destruction of the old tissue, which is supplied by these newly-manufactured products. Any excess or deficiency in the supply is disease. And the only philosophical method of curing or removing such abnormal conditions is to supply elementary deficiencies, prevent excesses, and maintain the natural relation of elementary principles to the human organism. What is true of Allopathy is equally true of Homœopathy. Who, after a moment's reflection, would suppose that chlorosis, which every pathologist admits is dependent upon a deficiency of iron in the blood, could be removed by infinitesimal doses of charcoal, oyster-shell, mercury and arsenic. Or who would suppose that the same remedies would remove disease of the bones, caused by a deficiency of lime and carbon in the system. But, what is still more ridiculous and absurd, in this hair-brain theory of Hahnemann and his followers, is, that their remedies, as mercury, arsenic, belladonna, &c., are capable of causing, and consequently of curing, fifty or sixty diseases each. Jahr, in his *Manual of Homœopathy*, vol. i., p. 563, states that sulphur will both cause and cure the feeling of despair of eternal salvation. Lachesis (p. 310, Jahr's *Manual*) produces, and hence should cure absence of religious feeling and fear of approaching death; a small dose of gold, taken internally, produces excessive scruples of conscience, and despair of one's self and others; veratrum produces extraordinary taciturnity, with oaths on the slightest provocation, and raving about religious matters. Aconite (p. 3) produces an irresistible desire to blaspheme and swear, and a sensation as if the mind was separated from the body. Anacardium (p. 33) produces the same swearing symptoms and absence of all moral and religious feelings; (vol. ii., p. 155) a dose of common colocynth (an ingredient in allopathic pills which most people have repeatedly swallowed) produces (says Jahr, p. 189) want of all religious feeling, &c., &c., &c. Lycopodium (club-moss) possesses the same power (p. 319) as sulphur, *i. e.* the feeling of despair of eternal salvation. Pulsatilla causes, and will cure, despair of eternal happiness, with continued prayer and devout aspects (Jahr, p. 468).

Thus, while Homœopathy is equally unphilosophical in its

general principles, it has advanced some of the most extravagant notions relative to the action of medicine ever advocated by any sect in the profession since the magic incantations of the followers of *Æsculapius*. If it were true that these remedies would produce such terrible conditions of body and mind, the effects would be still more disastrous.

In this case, a patient, who was curing himself for itch with sulphur, would be seized with despair of eternal salvation; also, according to Pulte's *Homœopathic Domestic Practice*, p. 516, he would contract periodical and intermittent head-ache; obstruction of the ears, with humming and redness; inflammation and ulceration of the nose; profuse perspiration day and night; congestion of blood in the head; heat in the face; tooth-ache; sore mouth; dislike for sweets; pain in the abdomen; constipation and piles. We can readily conceive how a person, who was suffering under the influence of the above disease, would be willing to endure many inconveniences to obtain relief, but, that he would exchange it for such a catalogue of ills is quite doubtful; and yet, if the homœopathic doctrine be true, and their notions of the action of remedies correct, such would be the case; and while one morbid condition of the human organism was being corrected, several hundred others would make their appearance. It is frequently claimed, by the disciples of this system, that although the law of *similia similibus curantur* cannot be established by appeal to the philosophy of medicine, still experience teaches it to be true in practice, and they have observed cases to recover while under its influence. This may be true, and yet it may not follow that the medication contributed in the least to the result; as it is now a well-attested fact that, without medical interference, the average mortality of all disease in this country does not exceed seven per cent. Hence, to ascertain the usefulness of any system of medicine, it is necessary not only to observe that some recover, but also how many the profession loses: if above seven per cent., it may be inferred that medication increases the mortality of disease. The limits of this work will not permit me to enter into a full investigation of these different systems of medicine, and show what I conceive to be true relative to all their principles. But in accordance with the principles of American Eclecticism, while we would reject every

hypothesis not founded upon science, we would gladly adopt whatever Homœopathy, Hydropathy or Allopathy contributes to the real advancement of medicine.

The therapeutic principles which guide us, then, are neither exclusively Homœopathic, Allopathic, Hydropathic, Antipathic, Physiological, nor Hygienic; but, by an intimate knowledge of the laws of life and organic elements of the different tissues, with a correct view of all the causes and influences brought to bear upon the human organism, together with a knowledge of all the physiological and pathological changes connected with disease, we are enabled to adopt such principles of cure as the nature of the case may indicate. In the choice of our remedial agents, we claim equal independence and liberality, selecting from all systems such as science and enlightened experience prove to be beneficial to the afflicted, having formed no definite boundary to our researches; for, as yet, no theory of medicine, as an independent system, has been able to stand the test of scientific analysis and experience. The following remarks of Thomas Jefferson, in a letter to Dr. Worcester, are to this point. He says:—"I have lived, myself, to see the disciples of Boerhaave, Cullen, Stahl, and Brown, succeed each other like the shifting figures of the magic lantern," and the practice predicated thereon, of course as evanescent and as changing as its sister theory; and we, of the present time, have, most of us, witnessed one entire revolution in theory and practice of disease; while we are at this very moment, on the last quarter of the full moon glory of a fast fading system. Where is the practitioner so wedded to the past, so tenacious of early practice, and so uncompromising of change as to risk his reputation or the lives of his patients, on the practice of twenty years ago? It is more than probable that before another half century has passed, the present system of Hydropathy, Homœopathy and Allopathy, like the systems of Hoffman, Boerhaave, Cullen, Stahl, and Brown, will be remembered only as a relic of the past. The well-attested truths of each will, no doubt, be treasured up by the American democratic or Eclectic cultivator of medical science, to contribute to that perfection in medicine, which will enable it to take rank with Chemistry, Geology, or Mathematics. To accomplish this is the object of American Eclecticism.



## DIAGNOSIS.

THE methods resorted to for the purpose of estimating the condition of the various organs and tissues of the body, are—1st. Inspection, which comprises a complete examination of all portions of the body. On inspecting the chest, observations should be made as to its configuration; whether it is deformed in any way by disease, or whether the deformity is congenital. The motions of the chest should also be examined, as a forced inspiration indicates spasmodic asthma; and a partial inability indicates pleurisy, &c. 2d. Palpation. By palpation is understood the application of the hand, or tips of the finger to the various portions of the body, so as to ascertain whether there is fluctuation, diminished or increased sensibility, &c. 3d. Mensuration. This consists of various measurements of different parts of the body, in order to learn the alterations, motions, size, &c. 4th. Percussion. The sounds produced by percussion, according to Mr. Bennett, are those occasioned in the solid textures of the organ percussed. The different density and elasticity of these textures will, of course, more or less modify the number and condition of the vibrations, and give rise to different sounds.

M. Piorry considers that nine elementary sounds are thus formed; which he has designated, from the organ or part which originates them, "*femoral, jecoral, cardial, pulmonal, stomachal, osteal, humorique, and hydatique.*" I consider that all these sounds may be reduced to three elementary ones; that, in point of fact, there are only three tones occasioned by percussion, and that all the others are intermediate. These three tones are, respectively, dependent—1st. On the organ's containing air; 2d, on its containing fluid; and 3d, on its being formed of a dense, uniform, parenchymatous tissue throughout. These tones, therefore, may be termed the *tympanitic*, the *humoral*, and the *parenchymatous*. Percussion over the empty stomach gives the best example of the first kind of sound; over the distended bladder, of the second; and over the liver, of the third. Certain modifications of these sounds occasion the *metallic* and *cracked-pot* sound. The latter is made audible over the chest under a variety of circumstances, by percussing with the mouth



open. The terms jecoral, cardial, pulmonal, intestinal, and stomachal, however, may be used to express those modifications of sound produced in percussing respectively the liver, heart, lungs, intestines, and stomach.

No description will suffice to convey proper ideas of the various alterations of tone occasioned by percussing over the different thoracic and abdominal viscera. To become acquainted with these, it is absolutely necessary to apply the pleximeter to the body, and then half an hour's practice with this instrument and the hammer will be sufficient to render any one conversant with those sounds which may be heard in a normal state.

It must be remembered, however, that the tones, even then, may vary according to circumstances. Thus, after a deep inspiration, the pulmonal sound will be rendered more tympanitic, and, after expiration, more parenchymatous. In the same manner the stomach and intestines may give out different sounds, according to the nature of their contents. In the left or right iliac fossa a clear tympanitic sound will be heard when the intestine below is empty; and a dull, parenchymatous sound, when it is full of fæces.

A study of the different modifications of sound, which various organs thus produce in a state of health, readily leads to the comprehension of the sounds which may be elicited in a morbid state. Thus, the lungs may occasion a dull or parenchymatous sound, from solidification, the result of exudation; or, on the other hand, become more tympanitic, from the presence of emphysema. The abdomen may give out a parenchymatous sound, from enlargement of the uterus, or an ovarian tumour; or a dull, humoral sound, from the effusion of fluid into the cavity of the peritoneum.

*Of the Sense of Resistance produced by Percussion.*—By the sense of resistance is understood the peculiar sensation resulting from those impressions which are communicated to the fingers on striking hard, soft, or elastic bodies. It is of the greatest service in determining the physical condition of the organ percussed. The sense of resistance bears relation to the density of the object struck; hence firm and solid textures offer more resistance than those which are soft or elastic. The tho-

rax of the child is elastic, whilst that of the adult is unyielding. Of all the thoracic and abdominal organs, the liver presents the greatest degree of resistance, and the stomach the least. The presence of fluid in the hollow viscera offers an amount of resistance between the parenchymatous organs on the one hand, and those containing air on the other. But air much condensed, or fluid contained within the rigid walls of the thorax, may offer a considerable degree of resistance.

The sense of resistance should be as much educated by the physician as the sense of hearing; and it would be difficult for an individual, practised in the art of percussion, to say which of these two points is the most valuable to him. Both are only to be learnt by practice; and we consider it perfectly useless to describe that in words, which may be learnt in half an hour by the use of the pleximeter and hammer on a dead body, or the living subject.

FIG. 1.

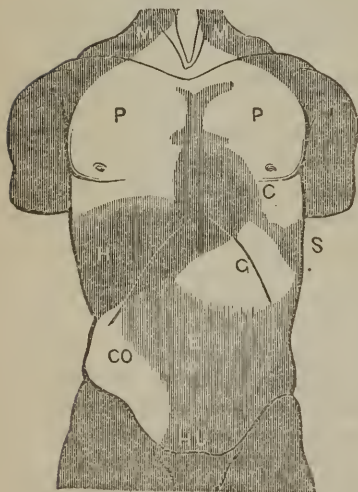
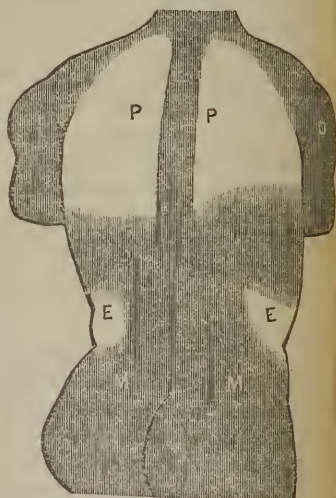


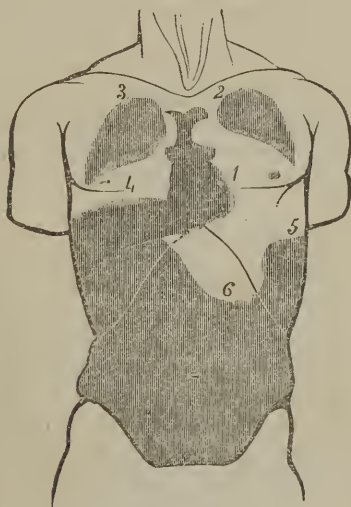
FIG. 2.



In order to more fully comprehend the location of the various organs so essential to a more complete understanding of the proper method of percussion, we refer to figs. 1 and 2, which

represent the normal extent of dulness. Notice, on percussing a healthy individual, fig. 1 represents the anterior, and fig. 2 the posterior positions; P P, pulmonary sound; C, cardial sound; H, hepatic sound; S, splenic sound; G, gastric sound; E, enteric sound; Co, colic from distended colon; H H, humoral sound over the distended bladder; M, muscular, and O, os-teal sounds.—(*Piorry.*)

FIG. 3.



On percussing the lung, especial reference should be had to detecting the healthy from the unhealthy, by comparing the opposite sides of the chest, and the various sections of the same lung. In the healthy lung, a marked difference in the resonance is observed from that in which the lung is diseased. Congestion of the lungs, in the first stage, causes only slight dulness. In the last stage, where the congestion is extensive, the dulness, is almost complete; and in partial indurations of the lungs from apoplexy, or cancerous exudations, the dulness heard

will be circumscribed, and always correspond to the extent of the diseased portion. Cavities in the lungs, when filled with air, may be detected by the excessive resonance, or tympanic sound. Cavities may be filled; in which event they will yield a dulness on percussion. On percussing the lungs, it is well to change the posture of the patient; as, in case the dulness is dependent upon a fluid effused into the pleural sac, the area or extent of dulness will change with the posture of the patient. When the lung is emphysematous, or if air be present in the pleura, the sound elicited will be tympanitic. Tympanitis, however, may be heard in other conditions of the lungs; such as over-distention of the lungs with air, as in some cases of pleuræ-pneumonia.

Fig. 3 represents phthisis, atrophied heart and liver. 1, atrophied heart; 2, infiltrated tubercles on the left side; 3, the same on the right side, with the cavity: 4, atrophied liver; 5, spleen; 6, unusual dulness over the abdomen from prolonged abstinence.—*Piorry*.

#### AUSCULTATION.

##### *General Rules to be followed in the Practice of Auscultation.*

1. Auscultation may be practised directly by applying the ear to the part, or indirectly through the medium of a stethoscope. Generally speaking, direct auscultation answers every necessary purpose, except when the surface is unequal, or when it is desirable to limit the sounds to a small region, as during auscultation of the heart. In either of these cases a stethoscope is necessary. The instrument is also useful to confirm or nullify the existence of certain fine sounds, which may be detected by the naked ear; to remove the head of the practitioner a respectable distance from the bodies of persons not distinguished for cleanliness; and lastly, as the most delicate method of auscultating the chest anteriorly in women. You should regard the stethoscope merely as a means to an end—that end being the right appreciation of the pathological changes indicated by certain sounds.

2. In the choice of a stethoscope, you should observe—1st, that the ear-piece fits your own ear; 2d, that the trumpet-shaped extremity is not above an inch and a half in diameter,

and is rounded so as not to injure the patient's skin when pressure is made upon it; 3d, that it is light and portable. The instruments recently made of gutta percha fulfil all these conditions.

3. In applying the ear, the body of the patient should be covered only with a smooth piece of linen, or a towel. But the stethoscope should be applied to the naked skin, and held steadily above the trumpet-shaped extremity by the thumb and index finger. It should be pressed down with tolerable firmness, whilst with the second, third, and fourth fingers, you ascertain whether the circular edge be perfectly applied, which is absolutely essential.

4. The position of the patient will vary, according to the part examined. In auscultating the lungs anteriorly, the erect or recumbent position may be chosen, the two arms being placed in a symmetrical position by the side. If the chest be examined posteriorly, the individual should lean somewhat forward, and cross the arms in front. In auscultation of the abdomen, various positions will be required, according as the anterior, lateral, or posterior regions demand investigation. The practitioner, also, should choose such a position as will prevent too much stooping or straining.

5. Whenever individuals are thrown into such a state of agitation as to interfere with the action of the heart or lungs, the examination should be deferred until their fear diminishes, or the greatest caution should be exercised in drawing conclusions. Non-attention to this rule has led to many errors.

6. Before examining patients in a hospital, it is necessary that you should have made yourselves perfectly acquainted with the sounds which are continually going on in the healthy body. Omission of this rule not only renders the examination of patients useless, but betrays great want of consideration; for, as it is only from the alterations the healthy sounds undergo, or from their being replaced by others, that we draw conclusions, how can this be accomplished if we are ignorant of their character in the first instance? It is expected, therefore, of every examining pupil, that he should be familiar with the character and theory of the various sounds heard in the healthy body before coming to the bed-side.

*Special Rules to be followed during Auscultation of the Pulmonary Organs.*

1. In listening to the sounds produced by the action of the lungs, we should pay attention to three things:—1st, the natural respiration; 2d, the forced, or exaggerated respiration; and third, the vocal resonance. For this purpose, having listened to the sounds during ordinary breathing, we direct the patient to take a deep breath; and then, still listening, we ask him a question, and during his reply judge of the vocal resonance.

2. You should commence the examination immediately under the centre of one clavicle; and having ascertained the nature of the sounds and vocal resonance there, you should immediately listen at exactly the corresponding spot on the opposite side. The examination should be continued alternately from one side to the other, in corresponding places, until the whole anterior surface of the chest is explored. The posterior surface is then to be examined in like manner.

3. When, in the course of the examination, anything different from the normal condition is discovered at a particular place, that place and the parts adjacent should be made the subject of special examination, until all the facts regarding the lesion be ascertained.

4. It is occasionally useful to tell the patient to cough, in which case we are enabled to judge—1st, of forced inspiration, as it precedes the cough; and 2d, of the resonance which the cough itself occasions.

*Of the Sounds produced by the Pulmonary Organs in Health and in Disease.*

I am anxious to impress upon you, that the sounds which may be heard in the lungs are like nothing but themselves. Students are too apt to take erroneous notions from reading on this subject; and, instead of listening to the sound actually produced, fatigue themselves in a vain endeavour to hear something like the crackling of salt, the rubbing of hair, foaming of beer, or other noises to which these sounds have been likened. Preconceived notions frequently oppose themselves to the re-



ception of the truth, and have to be got rid of before the real state of matters can be ascertained. Hence the great importance of deriving your first impressions of the sounds to be heard by auscultation, not from books or lectures, but from the living body itself.

If you listen through your stethoscope, placed over the larynx and trachea of a healthy man, you will hear two noises,—one accompanying the act of inspiration, and the other that of expiration. These are called the *laryngeal* or *tracheal sounds*, or *murmurs*. If you next place your stethoscope a little to the right or left of the manubrium of the sternum, you will hear the same sounds diminished in intensity. These are the *bronchial sounds*, or *murmurs*. If, now, you listen under and outside the nipple on the right side, or posteriorly over the inferior lobe of either lung, you will hear two very fine murmurs. That accompanying the inspiration is much more distinct than that accompanying the expiration. By some, on account of its excessive fineness, it is stated that there is no expiratory murmur in health; but this is incorrect. These sounds, then, are the *vesicular respiratory murmurs*. All these sounds become exaggerated during forced respiration, but in a state of health they never lose their soft character. Again, if you listen in the same places, whilst the individual speaks, you will hear a peculiar resonance of the voice, which has been called in the first situation, *pectoriloquy*; in the second, *bronchophony*; while in the third it is scarcely audible. A knowledge of these circumstances, and a capability of appreciating these sounds, are necessary preliminary steps to the right comprehension and detection of the murmurs which may be heard during disease.

I have to suppose, then, that you have made your ears familiar with these sounds, and that you are acquainted with the present state of theory regarding their formation. This last may be stated, in very few words, to be, that the respiratory murmurs are occasioned by the vibrations of the tubes through which the air rushes, according to well-known acoustic principles. Hence they are loudest in the trachea, finer in the large bronchi, and finest in their ultimate ramifications. The vocal resonance, on the other hand, originates in the larynx; and diminishes or increases—1st, according to the distance of any



point from the source of the sound; and 2d, according to the power which the textures have in propagating it. If now you examine, in succession, any cases which are labouring under well-marked pulmonary disease, you will have no difficulty in recognising that all the sounds you hear may be classified into two divisions:—1st, alterations of the natural sounds; 2d, new, or abnormal sounds, never heard during health.

1. *Alterations of the Natural Sounds.*—All the sounds of which we have spoken, and which can be heard in the lungs during health, may, in certain diseased conditions, be increased, diminished, or absent; their character or position may be changed; and with regard to the respiratory murmurs, they may present alterations in rythm or duration with respect to each other.

*Alterations in Intensity.*—Some persons have naturally louder respiratory murmurs than others; if this occur uniformly on both sides, it is a healthy condition. Occasionally, however, the sounds are evidently stronger at one place, or on side, (*puerile respiration*,) and then they generally indicate increased action of the lungs, supplementary to diminished action in some part. In the same manner there may be feeble respiration simply from diminished action, as in feeble or old persons; but it may also be occasioned by pleurodynia, obstructions in the larynx, trachea, or bronchi, pleurisy, pulmonary emphysema, or exudations filling up a greater or less number of the air-cells and smaller tubes, as in pneumonia, phthisis, &c. Complete absence of respiration occurs when there is extensive pleuritic effusion, or hydrothorax.

*Alterations in Character.*—The various respiratory murmurs may, in certain conditions of the lung, assume a peculiar harshness, which, to the ear of the auscultator, is a valuable sign, indicative of altered texture. Thus in incipient phthisis, the vesicular murmur under the clavicle is often *rude*, or *harsh*. In pneumonia, the bronchial respiratory murmur presents a similar character. When a cavity is formed, it becomes what is called *cavernous*, (hoarse or blowing;) and in certain cases of pneumothorax, with pulmonary fistula, it assumes an amphoric character.

*Alterations in Position.*—It frequently happens that the

sounds which are natural to certain parts of the chest, are heard distinctly, at places, where in health they are never detected. Thus, in pneumonia, *bronchial*, or *tubular breathing*, as it is sometimes called, may be evident, where only a vesicular murmur ought to exist. This is often well marked with regard to the vocal resonance, as certain lesions, which occasion condensation or ulceration of the lungs, will enable us to hear either bronchophony or pectoriloquy, where, under ordinary circumstances, no voice can be heard.

*Alterations in Rythm.*—In health, the inspiration is usually three times as long as the expiration. In certain diseased conditions this relation is altered, or even inverted. In incipient phthisis we often find the expiration unnaturally prolonged. In chronic bronchitis and emphysema it is three or four times longer than the inspiration.

II. *New, or Abnormal Sounds.*—These are of three kinds:—1st, rubbing, or friction sounds; 2d, moist rattles; 3d, vibrating murmurs.

1. *Rubbing, or friction sounds*, are caused in the pulmonary apparatus by some morbid change in the pleuræ, whereby, instead of sliding noiselessly on one another, they emit a rubbing sound. This may be so fine as to resemble the rustling of the softest silk, or so coarse as to sound like the creaking of a saddle, grating, rasping, &c.; and between these two extremes you may have every intermediate shade of friction noise. This variation in sound is dependent on the nature of the alteration which the pleuræ have undergone. If covered with a softened, thin exudation, the murmur will be soft; if it be tougher and thicker, the sound will be louder; if hard, dense, and rough, it will assume a creaking, harsh, or grating character. These noises are heard in the various forms of pleurisy.

*Moist rattles* are produced by bubbles of air traversing or breaking in a somewhat viscous fluid. This may occur in the bronchi, when they contain liquid exudation, mucus, or pus, or in ulcers of various sizes. They may be so fine as to be scarcely audible, (when they have been called *crepitating*;) or so coarse as to resemble gurgling or splashing, when they have received the name of *cavernous*. Here, again, between these two extremes, we may have every kind of gradation, to which auscul-

tators have attached names, such as *mucous*, *submucous*, *subcrepitating*, etc., etc. With these names you need not trouble yourselves; all that it is important for you to determine is, whether or not the sound be *moist*, and you will easily recognise that the rattles are coarse or large, in proportion to the size of the tubes or ulcers in which they are produced, and the amount of fluid present. These rattles may be heard in pneumonia, phthisis pulmonalis, bronchitis, pulmonary apoplexy, etc., etc.

3. *Dry, vibrating murmurs* arise when the air-tubes are obstructed, constricted, or lose their elasticity, and become enlarged, whereby the vibrations into which they are thrown by the column of air, produce sounds or tones of an abnormal character. Hence murmurs may be occasioned by a fine, squeaking, (*sibilous murmur*,) or of a hoarse, snoring character, (*sonorous murmur*;) and between the two extremes there may be all kinds of variations, to which ingenious people have applied names. These only cause confusion; all that is necessary is to ascertain that the murmur is *dry*, and you will readily understand that the fineness or coarseness of the sound will depend on the caliber of the tube or cavity thrown into vibrations. They are usually heard in cases of bronchitis and emphysema. Occasionally they present a blowing character, as when ulcers are dry, a condition which often occurs in phthisis.

The *vocal resonance*, besides undergoing the changes already noticed, in intensity, character, and position, may give rise to abnormal sounds. Occasionally it presents a soft, reverberating, or trembling noise, like the bleating of a goat, (*ægophony*.) The value of this sign, as indicative of pleurisy, was much overrated by Laennec. At present it is little esteemed. Sometimes the resonance gives rise to a *metallic tinkling*,—a noise similar to that caused by dropping a shot into a large metallic basin, or the note produced by rubbing a wet finger round the edge of a tumbler, or glass vessel. This is often best heard immediately after a cough in certain cases of chronic phthisis. *Ægophony* is supposed to be produced when a thin layer of serous fluid between the pleuræ is thrown into vibrations. The cause of metallic tinkling has created great discussion, and is not yet ascertained.—(*Bennett*.)

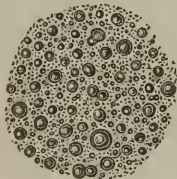
*Diagnosis by the Aid of a Microscope.*

In order to obtain a full benefit from the use of the microscope, the practitioner should carefully study the various structures and tissues of all portions of the body, both in health and disease, as well as the texture of all animal and vegetable substances which constitute the nutriments of the body.

1st. *Examination of the Saliva.*—In order to examine the saliva, a drop from the tip of the tongue should be placed upon a glass, and allowed to remain quiet for a moment or two, so that the bubbles of air may collect on the top; they should then be removed, and the remainder of the fluid pressed between two thin glasses; then, by applying a magnifying power of two hundred and fifty or three hundred diameters, you will observe salivary corpuscles, which are colourless, spheroid bodies, varying in size, containing a nucleus, occupying about one-third of the cell. The balance of the cell is filled with molecules and granules.

The epithelial scales are derived from the mouth, and are variously shaped, but are usually oblong or squarish. The saliva may present various alterations, depending on diseases of the mucous membrane of the mouth. Thus, where there is ulceration of the mucous membrane, there is an increase of the molecular, granular, and epithelial matter. In some cases inflammation of the mucous membrane gives rise to morbid growths. These are found mostly upon the borders of aphthous or ulcerated portions of the mucous surface. .

FIG. 4.

*Milk.*

On examining a drop of milk, we observe a number of milk corpuscles floating in a clear fluid: these bodies, in healthy milk,

are perfectly spherical, with dark margins. The globules consist of a delicate envelope of caseine, enclosing a drop of oil or butter. The act of churning consists in liberating these fat corpuscles, which accumulate in a mass, and constitute the butter. The richness of the milk is determined by the quantity of the globules; the various adulterations of milk are determined by the number and character of the corpuscles. Water separates the globules. Flour exhibits the large starch corpuscles, which are changed blue by the action of iodine. Chalk shows numerous irregular mineral particles. Brain substance can be distinguished by large oil globules, mixed with nerve tubes. Healthy milk may be recognised by the uniformity and size of the globules. In some cases milk is mixed with pus and blood, in which event it can be distinguished by the characteristics of these substances.

#### *The Blood.*

On examining a drop of blood, there will be seen a large number of bi-concave discs, rolling in the field of the microscope, which soon exhibit a tendency to turn upon their edge, and arrange themselves in rolls, like rouleaux of coins. These rouleaux, by crossing one another, dispose themselves in a kind of net-work, between which may be seen a few colourless spherical corpuscles, having a molecular surface, and a few granules. The coloured blood-corpuscles vary in size from the one-five-thousandth to the one-three-thousandth of an inch—according to Gulliver, one-three-thousand-two-hundredth of an inch. Owing to their bi-concave form, they present a bright external rim, with a central shadowed spot, or a bright centre and a dark edge, according to the focal point in which they are viewed. If the blood be exposed to the air a little time before examination, or if it be obtained by venesection, the edges of the corpuscles may often be observed to have lost their smooth outline, and to have become irregular, notched, serrated, beaded, etc. Long maceration in serum, or other circumstances, frequently cause them to diminish in bulk half their natural size, and to present a perfectly spherical, coloured body. On the addition of water, the blood discs become spherical, and lose their colour. On adding syrup, they become flaccid and irregular.

Strong acetic acid dissolves them rapidly ; and very weak acetic acid does so slowly, or diminishes their size by one-half.

The colourless corpuscles of the blood are spherical in form, and vary in size from the one-two-thousand-five-hundredth to the one-two-thousandth of an inch in diameter. Their surface presents a molecular or dotted appearance, almost disappearing on the addition of water, when they swell out by endosmosis. Acetic acid renders the acetic cell-wall very transparent, and brings the nucleus into view, consisting of one, two, or three round granules.

The examination of the blood by the microscope enables us to determine certain pathological conditions of that fluid, which, though few in number, are by no means unimportant.

In certain internal hemorrhages the blood-corpuscles break down, or become partially dissolved. When the external envelope is seen very transparent, the shadowed spot disappears, and there is found in their interior one or more granules. The liquor sanguinis also contains an unusual number of granules.

FIG. 5.



Blood-corpuscles, drawn from the extremity of the finger. On the left of the figure they are isolated, some flat and on edge, some having a dark and others a light centre, according to the focal point in which they are viewed. On the right of the figure several rolls have formed. Two colourless corpuscles and a few granules are also visible.

The same change is occasionally observable in the blood extravasated below the skin in scurvy, or purpura hemorrhagica.

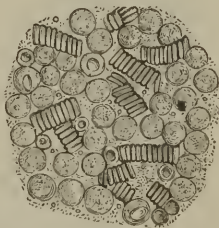
In a woman who died of cholera, Dr. James M. Cowan observed a remarkable alteration in the blood, which he was so good as to show me. It consisted in the coloured corpuscles being paler than usual, and the colourless ones normal, but



mingled with these were others varying in shape and size. They were generally circular; but some were oval, and a few caudate. They had a well-defined external smooth border, having one or two bright, refracting granules, generally situated in the external membrane, and occasionally projecting from it. When seen edgewise, they were flattened, and existed in the proportion of one to seven of the coloured corpuscles. Their long diameter varied from the one-one-thousand-two-hundredth to the one-two-thousandth of an inch, and their transverse diameter from the one-two-thousandth to the one-four-thousandth of an inch. The addition of acetic acid caused them to swell out, dissolved their external wall, and liberated the granules. Aqua potassæ rendered the whole structure paler; and a solution of muriate of soda rendered them more distinct, and of smaller size.

We have seen that, in a healthy condition, the blood possesses very few colourless corpuscles; but there is a certain state of that fluid which I was the first to describe in 1845, and have since called "Leucocythemia," or white-cell blood, in which they are very numerous, and generally associated with enlargement of the spleen, or other lymphatic glands.

FIG. 6.



It has been affirmed that the colour and number of the corpuscles of the blood undergo a change in plethora, fever, jaundice, dropsy, cholera, etc.; but exact observations are wanted to confirm the statement. I have never been able to satisfy myself that any such changes were observable in these diseases by means of the microscope. In chlorosis the number of the blood-globules is undoubtedly diminished; but this is determined by the size of the clot, rather than by microscopic demonstration.

Occasionally the serum of the blood presents a lactescent appearance; and, on being allowed to remain at rest some hours, a white, creamy pellicle forms on the surface. This consists of very minute particles of oil, which resemble the smaller molecules found in milk, and in the chyle.

### *Pus.*

Normal, or good pus, when examined under a microscope, is found to consist of numerous corpuscles, floating in a clear fluid, the *liquor puris*. The corpuscles are globular in form, having a smooth margin, and finely granular surface. They vary in size from the one-two-thousandth to the one-one-thousand-two-hundredth of an inch in diameter. In some of them there may be generally observed a round or oval nucleus, which is very distinct on the addition of water, when also the entire corpuscle becomes distended from endosmosis, and its granular surface is more or less diminished. On the addition of strong acetic acid the cell-wall is dissolved, and the nuclei liberated in the form of two, three, four, or rarely five granules, each of which has a central shadowed spot. If, however, the re-agent be weak, the cell-wall is merely rendered transparent and diaphanous, through which the divided nucleus is very visible.

Occasionally these bodies are seen surrounded by another fine membrane, as in fig. 7. At other times they are not per-

FIG. 7.

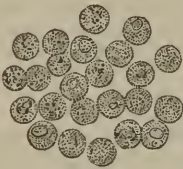


FIG. 8



Pus corpuscles, as seen in healthy pus.  
The same, after the addition of acetic acid.

fectedly globular, but present a more or less irregular margin, and are associated with numerous molecules and granules. This occurs in what is called scrofulous pus, and various kinds of unhealthy discharges from wounds and granulating surfaces. In gangrenous and ichorous sores we find a few of these irregu-

lar pus corpuscles associated with a multitude of molecules and granules, and with transformed and broken-down blood globules, the debris of the involved tissues, etc., etc.—(*Bennett.*)

In serofulous affections the pus corpuscles present an irregular and disorganized appearance. (See fig. 9.)

FIG. 9.



#### *Vomited matters.*

The first substance observed in vomited matter is the food in various stages of decomposition; and if there is either chronic or acute inflammation, there will be mingled with this portions of epithelial lining membrane of the stomach, and other parts of the digestive tube. The new formations which occur in the stomach are mostly vegetable fungi, such as *torulæ* and *sarcini ventriculi*. In addition to the above the vomited matters may contain pus blood, cancer-cells, bile, &c., &c.

#### *Fæces.*

On examination of the fæces all the elements which enter into the composition of the food, and in disease various morbid products will be observed. In typhoid, and other malignant fevers, the fæces will contain large crystals of phosphates and carbonates. They also contain numerous *torulæ*.

#### *Uterine and Vaginal Discharges.*

The menstrual discharge is composed of old and young epithelial scales and blood globules; and in cases where the menstruation is connected with disease of the mucous membrane of the uterus or vagina, with pus globules. The gelatinous discharge, which is always observed immediately after menstruation, consists of mucus, in which are found a large number of epithelial cells. The blood, which is found in the menstrual and leucorrhœal discharge, is found altered by exosmosis. In leucorrhœa and dysmenorrhœa, in addition to the albuminous

exudation, blood, pus, and patches of epithelial membrane may be found. In cases of a cancerous affection of the uterus or vagina, cancer-cells will be detected.

#### *Mucus.*

The fluids secreted by the mucous membrane are of a gelatinous character; and when the membrane becomes inflamed, or otherwise diseased, the mucous cells become converted into pus corpuscles.

#### *Dropsical Fluids.*

On examining dropsical fluids, some peculiarities frequently present themselves; as, for instance, the fluid collected in the tunica vaginalis, testes, spermatozoa will frequently be found. In other dropsical fluids, pus corpuscles, epithelial scales, and cancer cells are sometimes found.

#### *Urine.*

Healthy human urine, when examined with a microscope, is absolutely structureless; but in disease various substances may be recognised, of which Dr. Bennett gives the following description, (p. 96:)—

“*Uric Acid.*—Uric acid crystals are almost always coloured, the tint varying from a light fawn to a deep orange red. The general colour is yellow. They present a great variety of forms, the most common being rhomboidal. The lozenge-shaped and square crystals are more rarely met with, and are isolated and in groups. Not unfrequently they present adhering masses, or flat scales, with transverse or longitudinal markings. Occasionally they assume the form of truncated round columns, with other structures.

“*Urate of Ammonia* most commonly assumes a molecular and granular form, occurring in irregularly aggregated amorphous masses. This may be separated from a similar-looking deposit of phosphate of lime by the action of dilute muriatic acid, which immediately dissolves the last-named salt, but acts slowly on urate of ammonia, setting free the uric acid. Sometimes, however, it occurs in spherical bodies of a bistre brown colour, varying in size from the one-five-thousandth to the one-two-thousandth of an inch in diameter. The latter size rarely occurs. Occasionally they assume a stellate form, needle-like

or spicular prolongations coming off from the spherical body. I have seen both these forms associated, and the former so eunously aggregated together as to assume the appearance of an organic membrane, for which by some observers it was mistaken, until it was found to dissolve under the action of dilute nitric acid.

*“Triple Phosphate of Ammonia—Phosphate of Magnesia.—*These crystals are very commonly met with in urine, and are generally well defined, presenting the form of triangular prisms, sometimes truncated, at others having terminal facets. If an excess of ammonia exist, or be added artificially, they present a star-like or foliaceous appearance, which, however, is seldom seen at the bed-side.

“Most of the forms of urate of ammonia are associated with the triple phosphate.

*“Oxalate of lime* most commonly appears in the form of octahedra, varying in size, the smaller aggregated together in masses. Once seen, these bodies are readily recognised. Very rarely they present the form of dumb bells, or of an oval body, the central transparent portion of which presents a dumb bell shape, while the shadowed dark portion fills up the concavities.

*“Cystine* takes the form of flat, hexagonal plates, presenting on their surface marks of similar irregular crystals. Occasionally their centre is opaque, having radiations more or less numerous, passing towards the circumference.

“In addition to the various salts found in the urine, there may occasionally be found different organic products, such as blood and pus corpuscles, spermatozoa, vegetable fungi, exudation casts of the tubes, or epithelial scales from the bladder or mucous passages. Frequently one or more of these are found together.

“Very rarely casts of the tubes, principally composed of oily granules, may be seen, or epithelial cells, more or less loaded with similar granules, several of which also float loosely in the urine.

“Although these casts of the tubes were at one time confounded together, they may now be separated into at least four distinct kinds, namely,—1st, fibrinous or exudative; 2d, desquamative; 3d, fatty; and 4th, waxy casts. The inferences to be derived

from the presence of one or more of these will be especially dwelt on in the section which treats of urinary diseases.

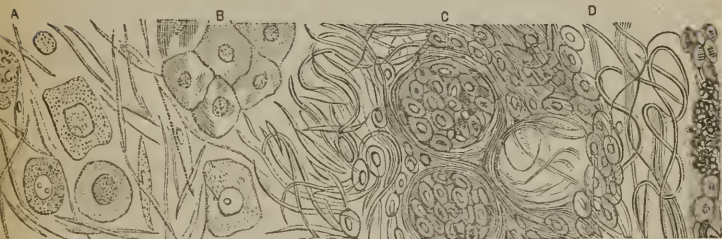
"Spermatozoa are occasionally found in the urine, but must not be considered as of any importance, unless accompanied by the peculiar symptoms of spermatorrhœa. The presence of torulæ in considerable quantity is indicative of the existence of sugar, which requires, however, for its confirmation, the application of chemical tests.

"All the various appearances here noticed are only diagnostic when accompanied by concomitant symptoms. Alone, they are not to be depended on; but, in combination with the history and accompanying phenomena, they are capable of affording the greatest assistance in the detection of disease."

#### *Cutaneous Eruptions and Ulcers.*

Pus taken from all kinds of eruptions and sores, presents the same appearance; thus, the pus taken from eczema and variola is identical in character. Squamous eruptions of the skin consist of psoriasis, pytyriasis, and ichthyosis. The dry scales, found on the surface in these diseases, consist of flakes of epidermis, more or less aggregated together. The tumours found on the skin which are of an epidermic character, assume the forms of callosities, condylomatous warts, and corns. They all consist of epidermic scales, more or less condensed. The favous

FIG. 10.



Appearance of section of cancerous ulcer of the skin. a, epidermic scales and fusiform corpuscles on the external surface; b, groups of epidermic scales; c, fibrous tissue of the dermis; d, cancer-cells infiltrated into the fibrous tissue, and filling up the loculi of the dermis.



crust consists in epidermic scales, lined with a fine granular mass, from which millions of cryptogamic plants originate and fructify. In cutaneous ulcers of a healthy character the surface is covered with normal corpuscles. In scrofulous or unhealthy sores the pus is more or less broken down. In cancerous ulcers of the skin the fluid obtained from the ulcer will be observed to be full of cancer cells. (See fig. 10.)

### *Chemical Tests in Diagnosis.*

In practical medicine the most important chemical tests are those which detect the presence of albumen, bile, sugar, and chlorides in the urine. To detect albumen, boil a small portion of urine in a test tube; and if there be albumen, the urine will become thick, and present the character resembling that of the white of an egg boiled in water. To detect bile, add a few drops of nitric acid to a dram or two of urine; and if bile be present, the urine will assume a greenish appearance. To detect sugar in the urine, a few drops of the urine may be placed on a slip of glass, and held over a spirit lamp until the urine is evaporated. If sugar be present, a dark sediment will remain on the glass. Trommer's test consists in adding a few drops of a solution of sulphate of copper, which gives the urine a pale blue colour. Liquor potassæ is then added until the hydrated oxide of copper thrown down is again dissolved. Then boil the solution, and if sugar be present the mixture will assume a yellowish-red tint. If the urine contains no sugar, a dark green precipitate will be thrown down. To detect chlorides in the urine, add to urine in a test tube one-sixth part of its bulk of nitric acid, and then add a few drops of a solution of nitrate of silver. If chloride be present, the chlorine will be thrown down with silver as a white precipitate. If none be present, the fluid will remain clear.

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### *Examination of Patients.*

There are various methods adopted by various practitioners for the examination of special cases of disease. The method which I have been in the habit of pursuing is the following:—

1st. What is your name, age, occupation, and place of nativity?

2d. What is the duration of your disease,—and so far as you can, describe its seat, nature, and cause. If the disease is accompanied with pain, place your hand over the region of its locality; and describe its nature, whether acute or severe, or heavy, dull, and throbbing.

3d. We proceed to a systematic examination of all the principal organs of the body; and first, the circulatory system, includes the heart and all the principal blood-vessels; the situation of the heart, its rythm, impulses, the locality of the apex. By percussion we learn its extent, and area of dulness; by auscultation we learn the character of the sounds; if abnormal, their position; by palpation and inspection we learn the nature and character of the arterial pulse, the existence of aneurism, &c., &c.

4th. You proceed to an examination of the respiratory system; the nares; its discharges; the voice, natural or altered in quality, hoarseness; difficulty of speech, aphonia; epiglottis; tonsils and pharynx; the lungs; state of respiration, difficult, quick or slow, equal or unequal, laboured, painful; dyspnœa; odour of breath; character of expectoration; hemoptysis; colour, appearance, and amount of blood discharged; cough, rare or frequent, short, long, or painful, moist or dry; external form of the chest by inspection; the resonance determined by percussion, whether increased or diminished; dulness, cracked-pot sound, &c., &c. The sounds determined by auscultation, whether normal or abnormal; their character, position, &c.

5th. Nervous system: of the character of the brain, as indicated by intelligence, cephalalgia, hallucinations, delirium, stupidity, dreams, vertigo, idiocy, monomania, coma. Spinal cord and nerves: general sensibility, increased, diminished, or absent; pain in the back; special sensibility—hearing, taste, sight, touch, smell; their perversion, increase, or diminution; spinal irritation, as determined by percussion; trembling, contractions, paralysis, rigidity, convulsions; motion, natural or perverted, pain on movement, fatigue.

6th. Digestive system,—mouth, taste in the mouth, lips, gums, and teeth; tongue—moist or dry, mode of protrusion, furred, fissured, colour, coated, condition of papillæ. Fauces, œsophagus, tonsils, and pharynx—regurgitation; deglutition, if impeded, examine the pharynx with a spatula; the neck, the cer-

vical glands, &c. Stomach—epigastric uneasiness or pain, nausea, thirst, flatulence, appetite, swelling, eructations, vomiting, character of matters vomited. Abdomen—hemorrhoids, pain, distention or collapse, diarrhœa, borborygmi, character of dejections, constipation, tumours; its preparation and measurements. Liver—the size, as determined by percussion, jaundice, results of palpitation, pain, &c. Spleen—the size, as determined by percussion. If enlarged, examine the blood microscopically.

7th. Genito-urinary system. Uterus—amenorrhœa, leucorrhœa, condition of the menstrual discharge, dysmenorrhœa, &c.; uterine or ovarian tumours; if pain, or much leucorrhœal discharge, examine os uteri and vagina with a speculum; difficulty in walking, or in defecation; pain in the back; functions of the mammæ. Kidneys—micturition, lumbar pain; precipitates, as determined by the microscope and by chemical tests; quality and quantity of urine, the specific gravity, colour; action on test papers; spermatorrhœa; stricture; action of heat, nitric acid, &c.; discharges from urethra.

8th. Integumentary system. Emphysema; temperature; general posture; marks or cicatrices; anasarca; expression of countenance; emaciation; rough or smooth; morbid growths, swelling; external surface; eruptions, (see diagnosis of skin diseases;) colour; œdema; perspiration; dry or moist.

9th. Antecedent history—parentage, age, constitution, place of residence, habits, irregularities in diet, mode of living as regards food and drink, hereditary disposition, excesses of any kind, trade or profession; exposure to heat, moisture, or cold; fatigue, epidemics and endemics, commencement and progress of the disease, contagion and infection; mode of invasion; in female cases, whether married or single; have had children and miscarriages, previous diseases, &c.; date of rigour or seizure; previous treatment, &c.

## PHYSIOLOGICAL, PATHOLOGICAL, AND PRACTICAL CONSIDERATION OF FEVERS.

PATHOLOGICAL researches have not as yet been as successful in revealing the seat, nature, and character of fevers, as of some other diseases. This may be owing in part to the nature of the investigation. The investigation being mostly confined to autopsic appearances, while a correct physiological analysis of the symptoms manifested in the progress of the disease, has been in a great measure neglected.

In order to arrive at a correct idea of the nature of fevers, a study of the causes, symptoms, and effects, produced by the remedies, and the character of these phenomena, with those of organic modifications in a state of health, with microscopic autopsic appearances, will enable us to arrive at a more just conclusion relative to all the pathological changes connected with fevers.

The phenomena of fevers are so numerous and so different in appearance, that it would be almost impossible to give a minute description of them. There is not a single derangement of function, or of tissue, which I have not observed in these diseases. They have then no specific symptom nor pathognomic sign; even the hot skin, rigors, and accelerated pulse, exist in diseases when fever is not present. Although this is true relative to a single phenomenon of fever, there are a series of phenomena, which is so uniformly present in what is termed idiopathic fevers, that we call the disease fever, when the symptoms are manifested in the following order :

1. Nervous depression, characterized by languor, lassitude, and debility.

2. Rigors and chills, connected with superficial capillary congestion, an irregular pulse, and hurried and oppressed breathing.

3. Reaction, characterized by a dry tongue, scanty urine, and loss of appetite. When these symptoms appear in the order in which they are here laid down, we denominate the disease fever. Although the above series of symptoms must always be present in the above order to constitute fever, it by no means includes the entire number of symptoms present in this disease. These symptoms indicate the disturbance of, or abnormal manifestation of,

1. The nervous system, as indicated by the debility, lassitude, aversion to mental and physical exertions, restlessness, creeping chills, horripilations, alternations of flushing heat, and irregular breathing.

2. A hurried and irregular action of the heart and arteries, dependent upon the abnormal nervous manifestation.

3. Immediately following this increased circulation of the blood, is an increased and abnormal temperature, a derangement of the secretions, as indicated by the scanty urine, dry tongue, hot skin, increased thirst, anorexia, &c., giving unmistakable evidence of the entire inability of the nervous system to afford these important organs the necessary stimulus. In thus carefully noting the series of changes which manifest themselves in all idiopathic fevers, we can commence at the derangement of the brain and nervous system, and follow the entire series of physiological and symptomatic changes, as arising from, and dependent upon, the primary cause of this entire class of diseases, *i. e.*, a derangement of the brain and its appendages.

In our classification of fevers, we have adopted that

which appears to us to be the only one warranted by the manifestations of this disease.

1st. Ephemeral Fever is the simplest of all forms of fever, yet it manifests the entire series of phenomena; but, owing to the mildness of the cause, it lasts only twenty-four hours. The cure is effected by the recuperative powers of the system.

The next form is that of Intermittent Fever, in which so much of the cause is removed as to relieve the nervous system for the time, but not entirely relieving the system from the morbid influences. During the thermal changes of the body in rest and sleep, the poisonous cause makes a sufficient impression upon the brain and nervous system to obstruct the proper supply of vital stimulus to the dependent organs of the body, and the result is a repetition of the paroxysm or Intermittent Fever. If the shock received by the brain and nerves, is of sufficient intensity to prevent a temporary restoration and reaction, the fever is called Remittent or Continued. When the secretory and excretory system is so far deprived of the necessary stimulus as to produce an entire suspension of these functions, and the circulating organs are exceedingly languid from the same cause, the fever is called Typhus or Congestive Fever. When, in addition to these symptoms, a disorganizing tendency is manifested in the glands of the bowels, the fever is termed Typhoid.

*The condition of the capillary vessels in fevers, as recorded by David Craigie, M. D., F. R. S. E., in his Pathological Anatomy, pp. 156 to 163.*

“In fevers, whatever be the form, intermittent, remittent, or continued, the capillary vessels are the seat of disorder. Nor is the affection confined to the capillaries of one region, of one organ, or of one tissue. The seat of fever is to be sought neither in the capillaries of the



brain and spinal chord, nor in those of the lungs, nor in those of the alimentary canal; but it is diffused over the minute ramifying communications of the aortic and venous branches, in whatever part of the body these communications are found. To establish the truth of this statement, it is requisite merely to consider the phenomena of fever in the living body, and its traces and effects in the dead.

“I presume that the affection of the capillary system of the brain, both cranial and vertebral, is too generally admitted to require being formally demonstrated. In point of fact, the pain in the head in the beginning of all fevers, the derangement of thought during their progress, and the tendency to stupor, and absolute coma towards the conclusion, are sufficient alone to prove disorder of the cerebral capillaries. But when blood or serous fluid is found effused into the ventricles, when the vessels of the brain are found turgid, distended with blood, and more numerous than natural, it is impossible to resist the inference as to the over-loaded state of the cerebral capillaries during life. I am aware that cases of fever are sometimes adduced, in which neither pain of the head nor deranged thought are observed. I can only say, that, among a very great number of cases which I have observed, though in a few the patient did not complain of headache, it was always possible to recognize more or less derangement of thought.

“In all cases, pain is felt when the patient coughs or stoops, or when the head is slightly shaken; and when no pain is said to be felt, it indicates that the stage of natural sensation is passed, and that he complains not, because he does not feel.

“In ague, the oppression of the cerebral cavities may be so great as to constitute inflammation (*Siriasis Ægyptiaca*), or phrenitic ague; or, in various degrees, the sleepy quotidian, the sleepy, lethargic, hemiplegic, carotic, and

apoplectic tertian, and the comatose quartan of practical authors (Werlhof, Torti, Lautter, Sydenham, Morton, &c), the same disease which has been named by Lancisi, Baglivi, and Morgagni, epidemic apoplexy.

“The disorder of the capillaries of the spinal chord is indicated by pain and weight in various parts of the column, by the derangement in the muscular motions, especially local palsy, *e. g.*, of the arms, legs, &c., by the tetanic spasms and convulsions taking place in many fevers. After death, much serous fluid flows from the *theca*; the vessels of the chord are distended and numerous; in all instances, serous fluid is effused, and sometimes pure blood issues from its capillaries.

“That the capillary system of the lungs is overloaded and oppressed in all fevers, is one of the most certain points in pathology. During the ague fit, the respiration is invariably quicker than natural, sometimes to the amount of thirty or thirty-six in the minute; the patient complains of sense of weight in the breast, cannot breathe fully, pants, and has frequent cough. In continued fever, the respiration is invariably quicker and more laborious than natural; a deep breath cannot be drawn easily, and more or less sense of weight and oppression is felt. I have found the respiration in continued fever so quick as thirty-six in the minute, while in ordinary cases, the application of the stethoscope indicates an embarrassed state of the circulation in the pulmonary capillaries. In persons predisposed, expectoration, streaked with blood (*hæmoptæ*), is not unfrequent during continued fever.

“The same conclusion is clearly established, by examining the lungs of persons cut off either by intermittent or by continued fever. In many instances of the former, it induces bronchial inflammation, or proceeds to actual peripneumonia or pleurisy, constituting the catarrhal, pneumonic, or pleuric tertian respectively (Werlhof, Torti,

Lancisi, &c). In the latter, the bronchial mucous membrane is always more or less red, sometimes crimson or purple, or of a deep brown color, rough and much thickened; the sub-mucous tissue is brown and loaded with serous fluid; and the minute vessels are much distended with dark-colored blood. The bronchial tubes are very commonly, in fatal cases, perfectly filled with thick, viscid mucus, which adheres to the inner surface of the bronchia membrane. The serous surface of the organ is generally livid or marbled from this cause; but the pleura itself is not much changed, save from the bloody serum discharged into its cavity. The lungs, in totality, are generally dense, and firmer than in the natural state.

“These changes arise from the minute ramifying vessels at the termination of the pulmonary artery, and the organs of the pulmonary veins being unusually loaded with blood. As they are more so than can be readily affected by the ordinary quantity of air admissible in such a state, imperfect respiration and undue change of venous blood contributes powerfully to the bad symptoms and the unfavorable termination of the disease. In such a state of the organs of respiration, the bronchial arteries are less able to counteract the bad effects of imperfectly respired blood, in so far as they receive from the aorta blood which has not been sufficiently arterialized.

“In the capillary system of the chylopoietic and assistant chylopoietic viscera, traces of the same condition may be recognized, both from the symptoms during life and its appearance after death. In these organs, two capillary systems may be distinguished, a primary and a secondary one. The primary is that which consists of the ultimate divisions of the splenic, gastric, and duodenal arteries, and of the superior and inferior mesenteric arteries, and their corresponding veins, which afterwards terminate in the splenic and superior and inferior mesenteric veins. The

secondary capillary system is that which results from the union of the minute extremities of the portal vein, and of the hepatic artery with those of the *vena cava hepatica*.

“It is unnecessary to dwell on the proofs of the loaded state of the capillary system of the alimentary canal. It is sufficient to remind the student that the furred or brown tongue, the thirst, the sense of internal heat, the loathing, squeamishness, and sometimes sickness, with weight, oppression, and tenderness of the epigastric region, sufficiently demonstrate the morbid state of the capillaries of the œsophagus, stomach, and duodenum; while the constipation of the bowels at the commencement, insensibility to cathartic medicine throughout, and occasional looseness at the conclusion, indicate the deranged condition of those of the intestines. After death, the minute vessels of the whole of these parts are found much distended with blood, generally dark-colored.

“In one form of fever, the abdominal or intestinal typhus, the ileum and its mucous follicles are very much affected. The follicles become enlarged, elevated, and prominent, and swelled in consequence of their proper tissue being attacked, and perhaps their secreting pores being obstructed. The apices become dead, and are thrown off in the form of sloughs; and in their place are left small ulcers, which, in no long time, enlarge, spread, and increase in depth. These changes may take place either in the isolated follicles, or in the aggregated patches, or in both orders of glands.

“In certain forms of fever, there are pain, distension, and uneasy sensations in the right iliac region; and when percussion is employed, the sound emitted is dull, while a peculiar croaking noise is heard, and a gurgling movement is felt beneath the fingers, as if produced by air and liquid moving within the intestine.

“These symptoms continue the greater part of the

duration of the fever; and though they are abated by local depletion, by means of leeches and laxative medicines, they do not disappear until the fever itself either abates or altogether retires.

“The portal vein constitutes, among the vessels of the digestive organs, a secondary capillary system, in which the blood is not less accumulated than in the primary one. It may be thought that, as the blood is accumulated in the first, it ought not so readily to find its way into the trunk, branches, and ramifications of the second.

“But this objection will vanish, when it is remembered that, at the same time, both the primary and secondary system of capillaries become overloaded. This state of the capillaries of the portal and hepatic system is established by the appearance of the liver in persons cut off by fever.

“The spleen may suffer so much from this capillary distension as to resemble a mass of clotted blood without trace of organization. This morbid and extraordinary distension of the primary and secondary capillary systems of the chylopoietic organs, though distinct enough in the fevers of temperate countries, is most conspicuously demonstrated in the agues and remittents of warm climates, and especially in the severe and extreme form termed *yellow fever*. In the former, great sickness and epigastric tenderness, with more or less vomiting, are frequent; and, in the latter, constant symptoms. The vomiting, however, is not bilious, as has been too generally imagined. It is, at the commencement, always a watery fluid, evidently derived from the capillaries of the gastric, and, perhaps, from the duodenal mucous membrane. After some time, it begins to be mixed with bile, expressed, no doubt, from the gall-bladder by the pressure of the stomach in the act of vomiting. A much more uniform occurrence, however, if the disease does not subside spontaneously, or is checked

by art, is the gradual admixture of blood, somewhat darkened, with the watery fluid. This blood issues from the capillaries of the gastric and intestinal tissues by a process analogous to exhalation in the sound state, but differing in so far as, in the capillaries from which it proceeds, a degree of disorganization has taken place.

“As the blood escapes into the cavity of the canal, originally not highly scarlet, it is rapidly blackened by the action of the carbonic acid and sulphuretted hydrogen gases, at all times present in greater or less quantity. This bloody exudation is at first scanty, but gradually increases as the disease goes on, until it constitutes the greater part of what is discharged both by vomiting and by stool. In the former case, it forms the black-vomit or coffee-ground matter (*vomito prieto*), so frequent in cases of remittent or yellow fever. In the latter, it forms the dark, tarry, or treacle-like stools, mentioned by practical authors in the same disease. The description now given is general, and applies to this capillary disorganization, as it takes place both in bad agues and remittents, and in yellow fever. In the former it is less frequent, but, nevertheless, takes place sufficiently often. In the latter, it is seen in its most aggravated form, and is almost invariable in fatal cases. Its origin and formation have been traced in the most satisfactory manner by repeated dissections.

“The idea that black vomit is morbid or vitiated bile, deserves no attention. In some cases of severe yellow fever, a dark colored fluid of the same physical characters as those found in the intestinal tube, may be traced coming down the biliary and hepatic duct, from the *pori biliarii*. This, however, instead of being bile, is blood which has oozed from the hepatic capillaries, in the same manner as that from the intestinal ones.

“The capillaries of the urinary system are much affected



during fever. Both in intermittents and in continued fever, bloody urine has been discharged.

“In the same manner, the capillaries of the muscles, of the filamentous tissue, and of the skin, are morbidly distended. One of the most common symptoms of fever is pain, soreness, and a sense of bruising in the muscular parts and limbs in general. In fatal cases, when these parts are examined by incision, unusual vascular distension and extravasation of blood are frequently seen. The livid spots and patches (*molæpes*; *vibices ecchymosata*) are proofs of the same state of the capillaries of the filamentous tissue, as petechial eruptions denote this in the skin. In short, there is scarcely a texture or organ of the animal body, the capillaries of which are not disordered in the different forms of fever; and this disorder, instead of being confined to the capillaries of a single organ, is extended throughout the capillary system at large.

“It is doubtless true, that in individual cases, this disorder may be greater and more distinct in one set of capillaries than in another. In one set of patients, the capillaries of the brain may be most disordered; in another, those of the lungs; in a third, those of the intestinal canal; and in a fourth, those of the urinary organs. It is always found, however, in such cases, that the affection of one organ does not entirely exclude that of another; and while the capillaries of the one are very much affected, though those of the others are less so, they are by no means in the healthy state. In all cases of severe and exquisite fever, whether intermittent, remittent, or continued, the capillaries of the brain, of the lungs and heart, of the chylipoietic organs, of the urinary organs, of the muscles, of the cellular tissue, and of the skin, are affected nearly in the same degree.

“An important question is to decide the nature of this

affection. The dissections of Home, Plocquet, Mills, &c., as to the brain; those of Schenck, Morgagni, Lieutaud, Sareoni, and others, as to the thoracic organs; and those of Lieutaud, Petit, and Serres, Broussais, Lermier, and Andral, Louis, Chomel, and Bright, as to the intestinal canal, might favor the supposition that the morbid process of fever consists in inflammation.

“Against this conclusion, however, various facts and arguments may be added.

“1st. In fatal cases of fever, unequivocal traces of inflammation are not uniformly or invariably found. The proportion in which these marks, as albuminous effusion, suppuration, ulceration, &c., are observed, is small, compared with the number in which accumulation of blood in the capillaries, and more or less disorganization of these vessels, are observed. 2d. In cases of pure, genuine, and unmixed inflammation of the internal organs, whether spontaneous or from injury, the concomitant symptoms, though febrile, are totally different from those that distinguish either intermittent or continued fever. 3d. The marks or effects of inflammation, which are found in the bodies of persons cut off by fever, are accidental complications, and may almost invariably be traced to inflammatory reaction supervening on the febrile process, in consequence either of the physical peculiarities of the individual, the local weakness of the parts, or the influence of external morbid causes. 4th. Inflammation is a local action confined to the capillaries of one tissue, or at most of one organ and contiguous tissues; and while the structure and functions of the organ may be completely impaired, those of others remain unaltered. In fever, on the contrary, the capillaries of all the tissues, and of every organ are affected; and while no individual organ is much affected at the commencement, every organ suffers a little in the general disorder of the capillary system. 5th.

Inflammation gives rise to albuminous exudation, suppuration, ulceration, and in certain parts, to serous, or seropurulent effusion. In fever, the morbid state of the capillaries terminates in complete destruction or disorganization of their organic extremities, and the consequent oozing of blood, from the surface of the several membranes and organs.

In conclusion, though it may be regarded as established, that, during the morbid process of fever, the whole capillary system is unduly distended and loaded with an inordinate quantity of blood, which really moves more slowly and imperfectly than in health, we have no facts that enable us to determine what induces this peculiar and excessive accumulation. Much has been said lately of congestion, and especially of venous congestion. The state of the capillary system which I have attempted to describe is that of congestion or accumulation; and so far the hypothesis of congestion is intelligible. Of the existence of venous congestion, however, unless as an effect of that in the capillary vessels there is neither proof nor probability. It is not a primary, but a secondary, or rather a remote consequence."—(Marsh.)

#### *The Condition of the Blood in Fevers.*

"It is obvious," says Dr. Carpenter, "that increase of fibrine in the blood does not exist as the result of fever."

Dr. Andral has observed a marked diminution of fibrine in the blood in all idiopathic fevers; he also found the red corpuscles and serum slightly increased. It is probable, however, that the increase of red corpuscle is relative in proportion to the amount of fibrine, and not in proportion to the entire bulk of the blood. "In typhoid fever," says Dr. Carpenter, "the decrease in the proportion of fibrine is much more decidedly marked; and that it does not depend upon abstinence from food, as, in all cases, as soon

as a favorable change occurs in the disease, the proportion of fibrine is much more decidedly marked." "In malignant forms of fever," says Dr. Simon, "the blood frequently becomes so deteriorated in amount of fibrine as to completely lose the power of coagulation." Another remarkable change which has been observed in the blood in Typhoid and other malignant forms of fever, is the want of due arterialization, as indicated by its dark blue appearance in the veins and arteries, as well as that of the capillaries. This being a very important one in a practical point, I will introduce the remarks of Dr. Cragie upon this subject :

"What is the cause of these changes? It is reasonable to think that for the cause we ought to look in the lungs chiefly. The lungs, I have already observed, are in all cases of fever more or less disordered, their vessels are congested and oppressed; their action is impaired; and there is proof of great derangement in the action of the bronchial membrane, imperfect admission of air to the bronchial tubes and their membranes, and, accordingly, inadequate arterialization, or, it may be, the lowest possible degree of that function. These may be regarded as matters of fact, capable of demonstration. Does this morbid state of the blood, then, begin in the lungs or in some other organ or set of vessels? When we consider the large extent of the bronchial membrane; the fact that, upon it are ramified the capillary divisions of the pulmonary artery; and the fact that through these vessels passes the whole of the blood of the body; and the further fact of the manifest disorder of the whole blood of the system in fever, it is impossible to resist the conclusion, that it must be chiefly, perhaps solely, on the blood of the lungs that the cause of the fever begins to display its primary and initial operation.

"On the nature of this cause it is not possible to speak with confidence or certainty. But if the general opinion that it is a poison diffused through the air, be well founded,

it is not difficult to perceive at least some traces of its mode of operation. Whether that poison be extricated in the form of a vapor or exhalation from the surface of the earth, and is telluric in its origin; or is eliminated from vegetable matters in certain circumstances of decay or change; or from vegetable and animal matters conjoined; or is given off as a subtle effluvium from the bodies of living human beings, in circumstances unfavorable to ventilation and the healthy performance of the functions; or is the result of some unknown and inappreciable state of the atmosphere;—it must equally be inhaled in the air in inspiration, and thus thoroughly mixed with the blood of the lungs in successive acts of the function of respiration. If it be so mixed, it must be circulated with the circulating blood, and in this manner distributed through the whole vascular system to every organ of the body. In doing so, however, this poisonous material will have so altered the blood in the lungs as to produce in that blood, and in these organs, a more decided effect than elsewhere. The shock first inflicted on the blood in these organs appears, it is natural to think, the great cause of the loss of coagulating power and the impaired arterialization. We know that one of the great uses of the lung, next to or along with the arterialization of the blood, is to maintain the coagulating power, and restore it when impaired. It is, therefore, natural to infer, that when the coagulating power is diminished, it depends upon some important impediment to the function of respiration, and that when the function of respiration is imperfectly performed, that it should evince its effects in a diminished proportion of coagulating power.

If these views be well founded, it follows that, when the blood thus altered is circulated, however imperfectly, it must operate hurtfully on the organs to which it is transmitted. It must act, in truth, as a poison, and many of the phenomena of fever are similar, certainly, to the effects

of poison, especially a poison at first irritant, and then sedative and narcotic. This appears to be the mode in which, towards the latter stage of fever, its cause acts on the brain and spinal marrow."

The ancients supposed fever to depend upon a warfare between the vital forces of the body and some noxious element which had invaded the system.

Hippocrates ascribed the different fevers to the four humors; blood, phlegm, and yellow and black bile. Galen supposed that the different forms of ague depended upon the corruption of the different fluids. That quotidian arose from the corruption of phlegm, the tertian from the corruption of yellow bile, and the quartan from that of black bile. He also supposed that, in whatever part of the body the heat began, it ultimately terminated in the heart, causing increased motion of the blood and accelerated pulse, followed by an effort of the *vis vitæ* to expel the poisonous agents from the system, and to assimilate the healthy fluids to sustain the different organs of the body. Sydenham says, "that reason dictates that a fever is nothing else than an effort of nature to thrust from the system morbid matter, in order to restore the patient to health; that seeing it has pleased God, the Governor of all things, so to constitute human nature as to be subject to a variety of diseases; that these diseases are introduced into the system in the form of poisoned air and otherwise, and that when once introduced into the system they become so identified with it that it is beyond the art of man to separate it, hence nature has provided for herself a method and concatenation of symptoms, so that she might thereby expel the poisonous matter which would otherwise ruin the whole fabric. Avicenna attributed the phenomena of fever to the superabundance of the different humors. Dr. Stahl maintained that fevers depended upon plethora or overfulness of the vessels, and a depraved condition of the



fluids. Hoffman maintained that fever consisted in a spasm of the capillaries. He attributed the cause of these spasms to some morbid affection of the nervous system. Cullen contended that fever depended upon certain abnormal changes occurring in the brain. Dr. Benjamin Rusn, that all diseases are a unit; and that fevers, as well as other diseases, depend upon an irregular action, and this irregular action, in its turn, is the proximate cause of every form and modification of disease. *Ploucquet* claimed that all fevers were dependent upon inflammation of the brain. Broussais that all fevers depended upon an altered condition of the mucous surface of the stomach and bowels. That this alteration was mostly confined to the mucous follicles; and that, as the disease advanced, they passed into a state of suppuration. Relative to the opinion of Broussais, Dr. Andral remarks as follows: "Admitting that simple or follicular enteritis is the commencement of a great number of fevers, can everything be explained by them? We never thought so; and it has always appeared to us that these fevers never become severe except in consequence of a disturbance which supervenes in the innervation and hematosis. This has been very satisfactorily proved by Prof. Bouillaud, who has contributed to give considerable weight to the doctrine of the localization of fevers, by placing this doctrine on a broader basis, more particularly by establishing the reality of the alterations, which on the one hand the blood, and on the other the nervous centres, undergo in a great number of fevers. The part performed by these has been also clearly demonstrated by the valuable observations of M. Chaufford, of Avignon.

This disturbance of hematosis and innervation, which gives rise to the phenomena called adynamic and ataxic, or in other words, to the typhoid state, may be the result of several lesions, different in their nature and in their seat.

First, gastro-intestinal inflammations give rise to it more frequently than diseases of any other organ. Of these inflammations, some are directed principally to the intestinal follicles, which become tumefied, and ulcerate; others consist merely in a simple ulceration of the mucous membrane itself. Other organs also, however, though less frequently than the digestive tube, may become the occasion of that profound disturbance of innervation and hematosiis, a disturbance which constitutes the adynamic and ataxic fever of Pinel. Thus phlebitis, pneumonia, particularly in aged persons, erysipelas, phlegmon, inflammation of the urinary passages, an abscess developed in the prostate, metritis, several forms of inflammation of the liver, variola, acute inflammations of the synovial membranes, etc., may give rise to it. M. Boisseau has clearly proved this in his physiological pyretology, and it has been put out of all doubt by several other works; by those of Dance, in particular.

Thus the ataxo adynamic, or typhoid state, may be developed, in consequence of a great number of affections widely differing from each other: it is a collection of symptoms identical as to their ultimate seat, but not as to their origin. Thus symptoms, identical also as to their nature, differ only in their greater or less intensity; with regard to their progress and duration, they are subordinate to the progress and duration of the affection, in consequence of which the typhoid symptoms have been developed. If it be a primary alteration of the blood which gives rise to them, these symptoms may acquire, in a few hours, their highest degree of development; and, in some cases, even occasion sudden death. If the commencement be in an organ where inflammation is rapidly developed, as in a lung, or in a vein, the typhoid symptoms shall have a quick course and a rapid termination, similar to this inflammation. If, on the contrary, they are connected with

an inflammation, which, as that of the intestinal follicles, has stages, which it passes through with a certain degree of slowness, they will be like the inflammation itself, slow in their development, and slow in their termination, whether favorably or fatally.

This is, we think, all the difference between a typhoid fever, which is connected with phlebitis, for instance, and that which follows dothieritis. There will be, however, in each of them, some particular symptoms, which will depend on the local lesion, as the diarrhœa in the case of follicular enteritis. We may, no doubt, as M. Louis has done, reserve the term typhoid fever for the morbid state which proceeds along with the affection of Peyer's glands; this, however, is a distinction purely arbitrary; and, besides this mode of proceeding, seems to us to be attended with the inconvenience of thus designating a great number of cases of follicular enteritis, in which the term typhoid affection has no longer any meaning; for all cases of follicular enteritis, certainly are not accompanied either with stupor, or with the different phenomena of adynamic or ataxic fever; all do not resemble typhus: they are oftentimes mere inflammatory, bilious, or mucous fevers, to use for a moment the language of the *Nosographie Philosophique*.

We do not think it right then to retain the term typhoid fever, because this term leaves a vagueness in the mind, not consistent with science, and because it often fails in exactness, with respect to the symptoms which it represents. We admit as a possible, but never a necessary consequence, a *typhoid state* in a great number of diseases; that is to say, a state in which there appear some general symptoms more or less similar to those which characterize typhus. This state indicates that the disease no longer exists in the organ where it had commenced—it is, in some degree, the signal that the blood and nervous centres participate in

the disease. Notwithstanding our objections to the use of the term typhoid, I do not feel justified in introducing another term, although it might be equally euphonious, and nologically more correct, but shall, according to custom, retain the term typhoid: in all cases using it in a nominative sense, without any regard to its qualifications of typhus.

By most European writers, typhoid fever has been, and is still considered the same as typhus; constituting the only essential fever not included in the modifications of intermittent. In the *Encyclopedia of Practical Medicine*, published in 1833, we find typhus fever "constituting one of the principal forms of continued fever; characterized by the earlier and more severe affections of the brain and nervous system, by the more constant changes which the mucous and glandular systems undergo; and in the advanced stages, by great prostration and symptoms of putrescence." And it is further added, "that it is not uncommon to find fevers at first very mild, assume by degrees the typhoid type."

And again, "There can be no doubt of every intermediate gradation between the common forms of intermittent, typhus, and typhoid, so that it becomes a matter of nicety to discriminate which class any particular case or number of cases belongs. Sometimes, indeed, we find the one form passing into the other; more frequently mild forms lapsing into typhus or typhoid." Dr. Copland, speaking of typhus and synochial fevers, states that they frequently run into typhoid. Observation has led me to conclude that the fever of this country, described by various writers as typhus, nervous, synochial, continued, putrid, &c., is a specific fever, dependent upon a specific cause; and that the supposed change in the type of fever is not a change in its nature or character, but rather a discovery on the part of the practitioner of its true character. When we consider the close resemblance of all fevers in their initiatory stages, and the habit of most physicians of treating cases upon general prin-

ciples, we are not surprised that this error in diagnosis frequently occurs. We have every reason to believe that these supposed changes in the character of fevers are erroneous; for when typhoid fever is closely observed, it will be found to pursue a definite course, passing through regular stages, spreading by infection, and being marked by a distinctive rash, presenting all the characteristics of genuine exanthema, to which class it seems correctly and exclusively to belong. For several years I have considered this fever as entirely distinct from the intermittent and remittent varieties, and to belong to the same family as scarlatina, rubeola, &c. I was led to this conclusion by observing, in nearly every case, that the initiatory symptoms, as pain in the head, back, and calves of the legs, wakefulness, &c., subside from the third to the fifth day, and are immediately followed by an extraordinary redness of the surface of the body, which is, in all cases, preceded for several days by a similar congested appearance of the mucous membrane,—so far as it is exposed to inspection, as the mouth, rectum, and vagina; and from the embarrassed respiration, anorexia, epigastric tenderness, and irregular condition of the bowels, there is every reason to believe that the entire mucous surface is affected in the same manner. This opinion is further supported by the fact that nearly all cases of typhoid fever in this country are preceded by more or less catarrhal symptoms, consecutive upon enteric and gastric irritation. The eruption is by no means uniform in its appearance or duration. In some cases careful observation is required to detect it, while in others it appears in large, diffuse patches over the entire body. The appearance of this rash depends much upon various conditions; such as the severity of the attack, the power of the system to repel the eruption from the mucous surface to the skin, the physical condition of the patient at the time of the attack, the character of the medication, &c. It also varies much in appearance at different stages of the disease. In

the early stage being very pale, and scarcely perceptible; but as the disease advances, and the premonitory symptoms disappear, it presents a vascular erythematic character.

As the rash appears upon the surface, the mucous membrane presents more of its normal appearance; but whenever it recedes from the surface, the mucous membrane again becomes red and congested, and all the constitutional symptoms become aggravated. There is increased pain in the head and back, difficult respiration and constant gastric disturbance, which again subside on the re-appearance of the rash upon the surface. This rash very much resembles that of scarlatina, except that it is less florid; yet, in several epidemics, I have seen the appearance so nearly allied as to lose its identity until the disease had reached the seventh or eighth day of its duration.

At first the eruption is pustular, *i. e.*, there are small papillary elevations, resembling very much the papillæ of the tongue, when they become elevated upon a red and congested base in the more advanced stages of the disease. The papillæ upon the surface of the body, however, are pale, or of a darkish purple hue. The rash usually makes its appearance from the third to the fifth day; and as I have already remarked, may be seen upon the mucous surface some days previously to this. Its first appearance upon the surface is upon the bowels, back, and neck. In more favourable cases, in the course of thirty-six hours from the first appearance of the erythema, its papillary character becomes plainly visible. In twenty-four or thirty-six hours after it is first seen, a small white vesicle appears immediately upon the apexes of the papillæ, which writers term sudamina. These vesicles, being very small and transparent, are frequently mistaken for dry dermoid scales, which, to the casual observer, they very much resemble. They are filled with a thin watery fluid, which very readily escapes on the vesicle being ruptured. If the powers of the system are feeble, and



the fever is of an adynamic character, the vesicles remain small, and in the course of twenty or thirty hours after their appearance they lose their transparency, and present a faded and dingy appearance, and in some cases entirely disappear. In this event, not only the sudamina disappear, but the entire erythematic eruption recedes to the mucous surface. I am satisfied that the petechiæ are an enlargement of the glands of the skin, caused by the irritation of a specific poison, and that the sudamina are the result of an exudation of particles of lymph or albumen from the cutaneous capillaries. This eruption, manifesting itself as it does in the *rete vasculosum* of the chorion, always destroys more or less of the scarf skin. Previously to the appearance of the exanthema, the capillaries of the cuticle may be observed to be heavily loaded with blood, which circulates with remarkable sluggishness until the eruption makes its appearance, when it circulates with more freedom, the skin becoming hot and dry. Whenever the deeper capillaries of the chorion become weakened, either from imperfect nutrition, or from lack of nervous influence, the rete becomes injected, giving rise to petechiæ. Another point of interest in the exanthema is, that in all cases the petechiæ may be seen before the bleb or sudamina. But this requires careful observation, as in the early stages of the disease the rete has not a red or florid appearance, although it may be slightly edematous.

Another important feature of typhoid fever is the tendency to metastasis, or recession of the eruption from the surface to the mucous membrane of the bowels, lungs, &c. The transfer of disease from one organ or tissue to another is of common occurrence; but in exanthema this appears to be especially the case. In scarlatina, rubeola, and typhoid fever, the recession of the erythema from the surface is always accompanied by serious constitutional disturbances, such as pain in the head and back, with greater epigastric and precordial pressure, high-coloured urine, anorexia, and, in many cases,

nausea and vomiting. There is also a strong tendency to disorganization of the mucous membrane, which is always preceded by a loaded or congested condition of the mucous capillaries. The weakened respiration and the albuminous urine are among the first indications of this congested state of the mucous membrane. As soon as the erythema disappears, (if its disappearance is premature,) the respiration becomes quick, and the atmospheric air fails to penetrate the minute bronchia; and hence the blood is imperfectly supplied with oxygen, and the effete and waste tissues fail to be converted into products for elimination. If this condition continue, the blood loses its coagulating power, (for in all cases the coagulating power of the blood is maintained by healthy respiration.) It also loses its bright scarlet appearance in the arteries, and assumes a dark purplish hue, indicating that it has become over-loaded with particles of waste matter from the body. If this condition of the mucous surface of the body continues for any considerable length of time, the blood becomes unfit for circulation in the minute capillaries, and the phenomena of life gradually fade, until the patient expires. Or if by a well-directed course of medication, or by natural active forces of the body, the erythema again appears upon the surface, respiration becomes natural,—the inspired air penetrates the minute bronchia, giving off its oxygen to the blood, and the zymotic products become converted into carbonic acid, urea, perspiration, &c., and are eliminated from the system by its various emunctories. I am unable to state the precise time of the appearance and duration of the eruption in typhoid fever. In many cases of a mild form I have noticed the rash to appear on or about the fifth day, to desiccate on the seventh, and desquamate on the tenth. In other cases I have observed the rash in the very outset, and again it did not appear until the disease had progressed for twenty, or even thirty days. In this event, however, the mucous mem-

brane becomes seriously disorganized, and in most cases there is severe hemorrhage.

Dr. Bartlett, in his work on the Fevers of the United States, p. 64, remarks: "The most usual period for the appearance of the eruption, is during the second week of the fever. In a few rare instances, they are seen as early as the close of the first week. Of twenty-five cases, in which this point was successfully noticed by Chomel, the eruption appeared between the sixth and eighth days of the disease in two; between the eighth and fifteenth days in thirteen; between the fifteenth and twentieth days in seven; between the twentieth and thirtieth days in four; and on the thirty-seventh day in one. They generally come out successively, one after another, and after remaining, commonly, for little more than a week, they successively and gradually fade away and disappear."

The following is Dr. Jenner's description of the rose spots: "They are slightly elevated. To detect the elevation, the finger had to be passed very delicately over the surface, as they had none of the hardness of the papulæ of lichen, or of the first day's eruption of small-pox. Their apices were never acuminate, never flat, but invariably rounded; their bases gradually passed into the level of the surrounding cuticle. No trace of a vesicle, or white spot of any kind, was ever detected on them. They were circular, and of a bright rose colour, the latter fading insensibly into the natural hue of the skin around. They never possessed a well-defined margin. They disappeared completely on pressure, resuming their characteristic appearances as soon as the pressure was removed; and this was true from first to last, from their first eruption to their last trace. They left no stain of the cuticle behind; they never passed into anything resembling petechiæ; the characters they presented on their first appearance continued till they vanished. Their ordinary size was about a line in diameter; but, occasionally,

they were not more than half a line, and sometimes a line and a half in diameter. The duration of each papula was three or four days; fresh papulæ made their appearance every day or two. Sometimes only one or two were present at first, ran the course above described, and then one or more fresh ones made their appearance, vanished in three or four days, and were followed by others to last as long. The number of papulæ seen at one time on the surface, was ordinarily from six to twenty; though occasionally there was only one, and sometimes more than a hundred.

"They usually occupied the abdomen, thorax, and back, but were occasionally present on the extremities. One was frequently noticed on the thorax, over the cellular interval, at the upper border of the pectoralis on either side. A *very pale and delicate* scarlet tint of the skin sometimes preceded the eruption of the papulæ, but never lasted more than a day or two; the skin resembling in tint that of a person shortly after leaving a hot bath. Rose spots were present in nineteen of the twenty-three of the fatal cases here analyzed." (Dr. Flint found the duration of the eruption in seven well-studied cases to be seven days. He met the eruption less frequently than some of the authors here quoted; that is, in forty-nine of his seventy-three cases. About two-thirds showed it in 1850, less than one-half in 1851, and all (fourteen) in 1852.)

Another pretty common eruption consists in transparent vesicles, to which the name *sudamina* has been given. These vesicles are circular, or oval in their shape, varying from that of a small pin's head to that of a split pea. They are formed by the presence of a limpid fluid elevating the cuticle. Their most frequent seat is upon the sides of the neck, and about the shoulders and axillæ, though they are sometimes scattered more extensively over the body. Chomel says that he has never seen them on the face. They are most readily seen when looked at in an oblique direc-

tion. They appear late in the disease, being rarely seen before the twelfth day. They usually remain for several days, and gradually disappear. They were present in two-thirds of Louis's cases, where they were carefully sought for, and in the same proportion, whatever was the severity of the fever. Dr. Hale attaches much less importance to sudamina as a diagnostic sign of typhoid fever, than Louis and Chomel.

The rash, then, may appear at different intervals, or it may not appear at all, and I have seen it in more than one instance disappear after having been out for a few hours only. What is true in regard to the appearance and disappearance of the rash in typhoid fever, is equally true in other exanthematous diseases. Dr. Rogers states that the eruption in measles will sometimes appear on the second or third day, or even sooner; while, in other cases, it does not appear until the seventh or eighth.

The disappearance of the rash in measles, on the third or fourth day, caused by exposure to a cold current of air, or by improper treatment, is by no means an uncommon occurrence; and every one of the least experience in this disease, is familiar with the disastrous consequences of this metastasis. In scarlatina, it is not unusual for the efflorescence to appear and disappear. In malarial districts nothing is more common than to have this appearance and disappearance of rash assume a regular periodical character. With the absence of rash in scarlet fever, every physician is familiar. In the anginose form it frequently does not make its appearance at all; and when it does appear, it many times is not seen until the tenth or twelfth day. In the malignant form the eruption is always much protracted in appearance, and in many cases fails to appear altogether. And when it fails to appear, the erythema being confined to the mucous surface, as in typhoid fever, the same disastrous consequences are produced. In order to still further support the preceding

facts, and to understand the nature of typhoid fever as it manifests itself in this country, let us inquire if this disease is contagious. Upon this Dr. I. G. Jones remarks: "In regard to the cause of typhoid fever, a great diversity of opinion is entertained among the most learned of the profession. Some contend with great earnestness that it is specifically contagious, and cite instances that it may seem difficult to explain to sustain the contagious character of the disease. Others again, equally entitled to confidence, from extensive observations, express themselves without any doubt in regard to its non-contagious character. It has always been a difficult matter to reconcile these apparently conflicting facts; and in view of the fidelity of the statements, made by individuals standing before the world and the profession, both unimpeached and unimpeachable, on both sides of the proposition, it may be thought impossible to do it. But in reviewing the whole subject, and examining the arguments and facts adduced by the partisans of both doctrines, I have at length, I think, discovered a satisfactory solution of the difficulty, by which the facts claimed by both are readily explained and reconciled.

"From its general prevalence, 'where human beings are crowded together, with insufficient or unwholesome food, in confined or vitiated air,' such as hospitals and ill-ventilated prisons; the densely populated, crowded, and filthy portions of cities; among the soldiers of large armies in camps; and in the close and crowded holds of emigrant ships, the generally accredited opinion is, at the present time, with most members of the profession, both among contagionists and non-contagionists, that it is caused, in some way, by the effluvia arising from the decomposition of animal matter; or, in other words, that it results from a poisonous animal.

"This conceded, it does not matter in what this effluvia consists; whether it be in the form of animalculæ, mephitic gas, or animal fungi—either of which will explain the facts.



But from this statement it will be seen that it may be either a contagious or an infectious disease, and the difficulty is not thereby removed. Let us see, however, if it cannot be reconciled better with one than the other.

“The laws of contagion are peculiar, and subject to few exceptions. All those diseases admitted to be contagious have their uniform periods of incubation, or latent periods; their regular rise, progress, and decline, without any considerable variation, unless by some accidental occurrence they are made otherwise; and they are uniformly propagated by exposure. Such, it may be, is the case with all those contagious diseases of which we have any knowledge, and we conclude, therefore, these are the laws of contagion. In this definition we include that class of contagious diseases known to be propagated without actual contact; making a distinction between those thus communicated, and those requiring immediate proximity to the poison to be taken—such as venereal, gonorrhœa, itch, &c., which clearly are not subject to the same laws, and, I apprehend, should not be comprehended in the term contagion, in its ordinary acceptation. These latter diseases, though they may be communicated directly from one person to another, are not governed by those general laws peculiar to the class of contagious diseases of which I am speaking; and, I think, therefore, should be regarded as propagated by what may be styled limited contagion, perhaps, with greater propriety, local contagion.

“How is it with typhoid fever? Its latent period is irregular and uncertain, varying from twenty-four hours to nearly as many days; and its rise, progress, and decline, are little more regular or determined than its period of incubation; in some instances continuing from four to six weeks, in others terminating in a few days; and exposure to the disease is not necessary to its propagation, for it often has a spontaneous origin. We conclude, therefore, it is incompa-

tible with the known laws of contagion, and hence cannot be contagious."

In making these statements, Professor Jones betrays a lack of observation relative to contagious diseases, as it is a well-known fact that small-pox, under Eclectic treatment, is not only modified in severity, but that nearly all the premonitory symptoms are completely arrested; besides, there are scarcely two cases, where the disease is allowed to run its natural course, in which the symptoms have anything more than a general resemblance, and even these are symptoms common to most acute diseases in the early stage. Dr. Jones himself, in giving the symptoms of small-pox, states, that previously to the eruption, they are the ordinary symptoms peculiar to remittent fever; and that the only peculiar symptoms are the increased pain in the back and greater irritability of the stomach. What is true relative to the irregularity of the symptoms in small-pox, is equally true of measles, scarlatina, &c. Not only are these diseases irregular in the manifestation of their premonitory symptoms, but their entire course is marked by variations both as to duration and severity; as in some cases of scarlatina they are so mild as hardly to disturb the normal manifestation; while in other cases the most severe symptoms are manifested, and result in the most disastrous consequences. A moment's reflection will satisfy every person who has been at all familiar with exanthematous diseases, that the observations of Professor Jones relative to their symptomatic character must have been very imperfect. Without entering into a further discussion of the subject at the present, let us inquire what are the facts relative to typhoid fever as a contagious disease. In 1851, typhoid fever attacked one of the inmates of a large building, located in a healthy village in Western Ohio. The building was occupied by several families, and every individual member had an attack of the disease. A few cases occurred in the immediate vicinity, otherwise the inhabitants of the village were entirely exempt.

There was but little communication between the inmates of this tenement and the citizens of the town. In 1855, the disease appeared in a family in another town, and a large number were exposed. The fever spread until a general epidemic was the result. In many cases the disease only manifested itself in the mildest form; but in all cases the characteristic rash made its appearance. At the same time the disease spread through the surrounding country, but in all cases the patient had been exposed, or lived in a contagious atmosphere.

Another fact that helped to establish in my mind the contagious character of the disease was, that during the first three weeks of the epidemic, the wind blew from the north-west, and the disease spread only in the opposite direction, unless the patient had been directly exposed to the infection. On the commencement of the fourth week the wind suddenly changed to the south, and continued to blow from that direction for some days. In less than two weeks the disease made its appearance in the opposite direction, and spread into the adjoining county. In 1858, this fever made its appearance in another town in Ohio. The first case was in the north-east part of the town, much elevated above the main village. The wind blew from the proper direction to carry the infectious atmosphere over the town, and the result was that the disease spread most rapidly, and a general epidemic prevailed. Instances might be multiplied to show with what uniformity the disease always spreads to the leeward. Not only is the infectious character of typhoid fever proved by these results, but the almost certainty of its attack upon nurses and attendants, unless they enjoy an immunity from it by a previous attack. I have conversed upon this point with many intelligent physicians of extensive observation, all of whom agree with me, that typhoid fever uniformly attacks nearly all, if not all, of the unprotected members of the family where it makes its appearance. I will relate one

instance only as it occurred in my practice, in illustration of this fact. In 1857, a boy of some ten years of age was attacked by typhoid fever. Before he recovered, his sister, a few years older, came down; and, in two weeks, the father, mother, and two other members of the family, all with the same disease.

Four families in the immediate neighbourhood were soon attacked in the same manner, and in the course of two months it manifested itself to a greater or less extent on all persons who had been engaged as nurses or attendants, not exempted from it by a previous attack. I could quote hundreds of similar cases, which I have observed for the last few years. I find my observations verified in other sections of the country, in nearly every particular; so that I have become satisfied that typhoid fever, in this respect, manifests all the characteristics of genuine exanthema. Although a second attack of this disease is unusual, yet I have seen all the characteristic symptoms the second time, and in one instance an individual had an attack at four different periods. But immunity from a second attack is quite as sure as from any other form of exanthema.

Dr. Bartlett also states that "the general opinion has been that typhoid fever was not propagated by contagion." Louis, in his first edition, published in 1829, says nothing upon this subject. Chomel, in his *Leçons de Clinique Médicale*, published in 1834, although he himself was inclined to the opposite opinion, says that not more than one physician of a hundred, in France, regarded the disease as contagious. Andral says he never saw any evidence of its contagiousness. Dr. James Jackson says, if he were to answer from general experience, he should say that instances occur in which there is much in favour of the doctrine of contagion; but that, in the very great majority of instances, there is not any such evidence. He relates some cases, occurring among the hospital nurses, apparently attributable to conta-

gion. In 1829, M. Bretonneau read to the Royal Academy of Medicine a paper, intended to show that the disease, as it prevailed in the country, was often transmitted from one individual to another. Leuret, about the same time, adopted a similar opinion. The subsequent researches of Gendrof, Ruef, Putegnat, and others, have confirmed this opinion; and Louis has adopted it in the second edition of his work, published in 1841. Many years, however, previous to these publications, Nathan Smith asserted, in the most positive and unqualified terms, the contagious character of this disease. His essay was published in 1824. "That the typhus fever is contagious," he says, "is a fact so evident to those who have seen much of the disease, and who have paid attention to the subject, that I should have spared myself the trouble of saying anything in regard to it, did I not know that there are some physicians in this country who still dispute the point; one which I think can be as fully demonstrated as that the measles, small-pox, and other diseases, universally allowed to be contagious, are so." Dr. Smith then mentions several instances, which had fallen under his own observation, where the disease seemed to have been communicated through the medium of a contagious principle. From amongst these, I select the following:—"A young man, a pupil of mine, was attacked with the typhus fever, from which he recovered with some difficulty. Some of his family, who lived about forty miles distant, came and took care of him during his sickness. Upon his recovery they returned home in good health, but soon after sickened with the same disease, and communicated it to others, who had not been exposed in the first instance. From this it spread to numerous other families in the vicinity, who had been exposed to the contagion. In the whole town where this occurred, there had been no case of typhus fever for many years, till brought there by the circumstance above related."

During the prevalence of the typhus fever in Thetford, Vt., a woman went there from Chelsea, about ten miles distant, to visit and administer to a sister sick of this disease. Upon her return she was herself attacked by it, and soon after died. Others of her family contracted it of her; and in about four weeks there were thirty persons taken down with typhus, all of whom had been exposed to the contagion. Dr. Samuel Jackson, formerly of Northumberland, relates several striking instances similar to those quoted from Nathan Smith, showing the contagious quality of the disease. The memoir of M. Gendrin upon this subject, is very full and elaborate. He adduces a great number of instances similar to those above quoted from Dr. Smith, many of them very striking and conclusive, to show the contagiousness of the disease. He believes that it is transmissible by direct and repeated contact; by the presence of the sick, without contact; that it may be carried from a sick person, and communicated to another by a third, who does not have the disease; and also, that it may be contracted from exposure to infected clothing, beds, and similar fomites. He regards the first-mentioned mode of transmission as altogether the most common. The indirect transmission of the disease from one individual to another, through the intervention of a third, he thinks does not often happen, except where it is prevailing more or less extensively as an epidemic. The disease is most frequently communicated to those who are in the closest and most constant relation to the sick—their nurses and immediate attendants.”

Genovese states, that during the universal prevalence of measles in 1787, he attended forty-six cases of both children and adults, who had already gone through with the disease some time before. Dubosque had occasion to treat several children for measles that he had previously carried through the same disease. Dr. Baillie states that he had occasion to treat five children for measles the second time. Every prac-



itioner of any considerable experience in scarlatina and small-pox is familiar with instances of their second occurrence in the same individual. Dr. Morton states that he met with a case where the system derived no protection from repeated attacks.

*Anatomical Character.*—The anatomical character of fever varies with the type of the disease. In intermittent, autopsy has shown traces of inflammation of the arachnoid membrane. The liver is frequently the seat of lesion, and sometimes undergoes a change of structure. In chronic ague, it presents the appearance described by Dr. Craigie, caused by the congested condition of its capillaries. But of all the organs of the body, the spleen is the most uniformly affected. It is not only changed in structure, but becomes very much enlarged, and in all fatal cases proves to be the principal organ on which the disease has spent its force. In remittent and congestive fevers, the essential anatomical character is altered in the condition and structure of the liver and gall-bladder; although other organs, such as the spleen, lungs, brain, and we might add, the entire capillary system, at times manifest organic lesion and congestion.

In typhoid fever the principal anatomical characteristic appears to be confined to the glands of the bowels. Dr. Bartlett states that “the mucous membrane, exclusive of the elliptical plates and the isolated follicles, is, in a majority of cases, more or less changed in colour. In many it is preternaturally red. The redness is sometimes continuous, and extends through a large portion of the intestinal tract; at other times, and more frequently, it exists in patches or zones. Occasionally, the colour is grayish; this is particularly the case when the disease has been protracted to a late period.”

The consistence of the membrane, like its colour, is found, in a moderate proportion of cases, quite natural. Oftener, however, it is more or less diminished; sometimes so much

so as to resemble an unorganized pulp, spread, like a layer of paste, over the subjacent tissue. This softening is, in some cases, quite simple; that is, it is not connected with any other appreciable alteration. In others, the membrane is, at the same time, reddened or thickened, or both. It is the opinion of Louis, that these two forms of softening are unlike in their character and causes. The latter he considers to be inflammatory; the former, he thinks, may depend on different causes, but that it is not the result of inflammation. In a part, at least, of the cases, he is inclined to regard it as the result of post-mortem, or cadaveric change.

The invariable and characteristic lesion found in the small intestines, to which allusion has been made, consists in alterations, differing somewhat in different cases, of the *elliptical plates*, or *Peyer's glands*. The condition in which these bodies are found varies with the duration of the disease, with the distance of the plates themselves from the ileo-cæcal valve, and from other circumstances, the nature of which is unknown. Without entering into so minute and elaborate a description of the several forms of this lesion, as has been very properly given in the original researches of Louis and Chomel, I shall enumerate the principal and more striking varieties.

In a small proportion of cases, consisting of those which terminate early, the elliptical plates, together with the subjacent cellular tissue, are merely increased in thickness, with redness and softening. This increase of thickness is such, that the edges of the plates have been known (in rare cases) to project to a distance of from one to two, or three lines, above the surrounding mucous membrane. Sometimes the hypertrophy of the plates and of the subjacent tissue is quite simple, the colour and consistence of the membrane remaining unaltered. This simplest form of the lesion, that I am now describing, like all the others, which are more complex, is invariably found most advanced, and most strongly

marked, at the lower extremity of the ileum. Each successive plate, as we go upward along the intestinal tract, from the ileo-cæcal valve, is less and less profoundly altered, till we arrive at those which are in a natural condition. The number of plates thus changed is various; sometimes extending to fifteen or twenty, and at others limited to one or two, and these always in the immediate neighbourhood of the ileo-cæcal valve. Louis says, that in two-thirds of the cases the number of plates more or less altered, is from twelve to forty.

The surfaces of the thickened plates frequently present a granular, or finely mamellonated appearance. This condition becomes very manifest when the gland is detached from its subjacent tissue, and held between the eye and the light. At other times, the surface of the thickened membrane corresponding to the plates, is quite smooth and level.

In a great majority of cases, the plates, instead of being merely thickened, with or without redness or softening, are more or less extensively the seat of ulcerations. These ulcerations vary much in size and number. It frequently happens, for instance, that in proceeding from above downwards in our examination, after having passed over several places, we come to one of them in which there is a simple circumscribed ulceration, with perpendicular edges, extending more or less deeply into the thickened tissues. As we go on towards the termination of the intestine, the ulcerations become more and more numerous and extensive, till at last, for several inches next to the valve, the plates are entirely destroyed, and we find only ulcerations, corresponding to their size and shapes, occupying their places.

These intestinal ulcerations are commonly more or less regularly rounded, or oval in their shape. Sometimes, however, their borders are irregularly jagged and angular. So their edges are, in most cases, pretty regularly perpendicular and smooth, but sometimes they are ragged and shreddy.

The bottoms of the ulcerations vary, of course, with their depths. They consist, sometimes, of the cellular tissue immediately under the mucous membrane; sometimes of the muscular coat, and sometimes of the peritoneal covering. Occasionally this covering itself gives way, perforation takes place, and the contents of the intestine are discharged into the cavity of the peritoneum. Louis found this lesion in eight of fifty-five cases. Chomel quotes two instances of its occurrence in his clinique at the Hôtel-Dieu; in one of which, however, the perforation took place in the large intestine. The perforation is usually single, small in diameter, and near to the termination of the ileum. In one of these cases, mentioned by Dr. Hale, it was at the distance of forty-four inches from the ileo-cæcal valve. It generally takes place at a late period of the disease. Perforation occurred in three of Dr. Jenner's twenty-three cases, respectively on the seventeenth, thirty-first, and forty-second day of disease. "The perforation of all three took place through the floor of an ulcer seated on one of the agminated glands. In two of the three perforation occurred in the lower nine inches of the ileum; in one, three feet above the ileo-cæcal valve. In two of the three the coats of the intestine were destroyed through their whole thickness, at another spot from that at which the perforation, which proved fatal, took place; but the contents of the bowel had been prevented escaping through the aperture first formed by adhesion, in the one case, to the fundus of the uterus; and in the other, to a fold of the intestine. It will be observed that, in one of the three cases certainly, the fatal perforation took place after the termination of the fever." It is a very singular fact, that this fatal accident commonly occurs in the course of very mild, or almost entirely latent, forms of fever. This was the case in ten of twelve instances cited by Chomel. Chomel suggests that the distention of the intestine by gas may frequently be the immediate cause of perforation. This

seems hardly probable, since the greatest distention is usually confined to the large intestine, while perforation is most frequent in the small. It has occurred to me that the frequency of the accident in the mildest, and in some degree latent form of the disease, might possibly be occasioned by mechanical causes, especially by efforts of the patient while standing or walking.

This accident is much less common in children than in adults. Taupin met with it only twice in one hundred and twenty cases, and Barthez and Rilliet only once in one hundred and eleven cases.

There is another peculiar appearance of the diseased plates, which is found in a certain proportion of cases; according to Louis, somewhat less than one-third. This seems to consist in a morbid change, or transformation of the sub-mucous cellular tissue. Instead of being simply hypertrophic, with or without redness or softening, as in the cases already described, there is deposited in the tissue a substance of a yellowish colour, destitute of any traces of organization, presenting a surface somewhat glossy when cut, and about as hard and friable as crude tubercle. The term *typhus matter* has been given to this morbid deposit. This peculiar condition was observed in several subjects, during the grave epidemic of 1833, '4, in the city of Lowell; and, in accordance with the fact previously noticed by Louis, it was most frequent and striking in cases which terminated quite early. This would seem to indicate that the alteration in question is connected with the more severe and rapid form of the disease.

Dr. Jenner, after a careful examination and analysis of these lesions in twenty-three cases, sums up the results in the following conclusions:—

1. That ulceration of the solitary and agminated glands may commence in two modes: on the one hand, by softening of the mucous membrane, abrasion of the extremely

softened superficial tissue, and then enlargement of the breach of continuity thus formed, in depth and extent, by simple ulceration; on the other, by sloughing of a portion of the submucous tissue containing the before-described deposit, and of the mucous membrane over it, and then extension of the ulcer in breadth and width, by the separation of minute sloughs from the edges of the breach of continuity, left after the separation of the slough first formed.

2. That when the whole of the deposit has sloughed out, no fresh deposit is formed; and that, consequently, as the whole of that deposit is seated in the submucous tissue, destruction of the mucous fibres of the intestine must be the result of simple ulceration.

3. That resolution of the disease affecting the patches may, in some cases, occur before ulceration has taken place.

4. That ulcers, of considerable size, may heal.

5. That no contraction follows, within a short period, the healing of the ulcers.

6. That ulcers dependent for their origin on the presence in the system of the fever poison, may, after the fever has run its course, continue to spread, retard recovery, and even cause death by perforation.

7. That while some of the ulcers are undergoing the healing process, others may be spreading; or, as Rokitansky says, may pass into the state of atonic ulcers.

On summing up the locality of fevers, we may reasonably infer that the intermittent form is intimately connected with a deranged condition of the spleen, while the remittent and congestive spend their force upon the liver and stomach, and typhoid upon the bowels. Yet it is contrary to the universal characteristics of all forms of fever, to confine their anatomical and physiological changes to any definite boundary, as each and every organ of the body is necessarily more or less dependent upon the entire organism, which constitutes the whole. So disease, although local in its in-



iciency, soon extends its abnormal influence to nearly, if not every tissue of the body.

On making post-mortem examinations, it must be borne in mind that the anatomical changes observed are not always the result of diseased action, from the fact that but very few, if any, fatal cases of fever occur, without the patient receiving more or less medical treatment; and it is well known that nearly, if not all the medicines used in the treatment of disease, are susceptible of producing changes in the various tissues of the body, and that these remedies do frequently play an important part in the organic change of various tissues, will hardly admit of a doubt. Hence, in order to estimate the full effect of disease upon the different organs and tissues of the body, we must take into consideration the influence of the various remedies used in its treatment.

### TYPHUS FEVER.

Typhus Fever; common names—Hospital Fever, Jail Fever, Camp Fever, Malignant Fever, Putrid Fever, Congestive Fever, Ship Fever, &c. There is, perhaps, no fever that is so illy defined, and relative to which practitioners have so much diversity of opinion, as regards the classification, nature, and character, as of Typhus Fever. A class of very respectable writers regards this fever as an idiopathic affection; while others of equal ability and notoriety regard it as a condition, or one of the dependencies of bilious remittent fever. Among the former are Drs. Gerhard, O'Brien, John Cheyne, Jenner, Upham, Flint, Bartlett, Wood, Copland, &c.; among the latter we may mention Drs. MacIntosh, Armstrong, and I. G. Jones. Dr. Gerhard, of this city, has published the history of an epidemic fever which prevailed in Philadelphia in 1836, which he regards as identical with typhus fever, which has been so elaborately described by many European writers; and especially of that which is described by Drs. Barker and Cheyne as the great

Irish epidemic typhus fever which prevailed in 1817, '19. In the description of the Philadelphia epidemic, as published by Dr. Gerhard, we cannot discover that the disease differed in any essential degree from the malignant forms of malarial fevers which have prevailed so generally throughout the United States, when modified by a vitiated state of the fluids, a feeble vitality, and the addition of animal effluvia. Dr. Gerhard mentions that the attack of the fever was usually preceded by lassitude, debility, and loss of appetite; that it was ushered in by rigours and chills, and that during its progress it was characterized by frequent exacerbations and declines. The only symptoms which appeared to distinguish this fever from the ordinary congestive fever of the Western, Southern, and Middle States, were the more violent symptoms of enervation, such as great nervous prostration, early delirium, &c. Of this fever Dr. Copland remarks:—

“This fever is *characterized* by phenomena which distinguish it from the foregoing varieties, by *catarrhal and gastric symptoms early in the disease*; by *stupor, delirium, or typhomania*; by a *peculiar cutaneous eruption*; by *more or less evident affection of the liver*, and by the *determinate course and regular succession of all the febrile changes*.

“*True, or contagious typhus*, has been confounded with *synchoid and nervous fevers*, on the one hand, and with *putrid or malignant fever* on the other. It has been already stated that putridity, or malignancy, not only may characterize a particular form of fever, or certain epidemics, even at an early period of their course; but also, owing to various contingencies, may take place in advanced stages of any other fever. As the circumstances favouring the generation and spread of typhus are often such as also to develop those changes which have been usually named putrid or malignant, and as these changes are frequently observed in the latter stages of typhus, the symptoms distinguishing

this fever becoming associated with, or followed by those indicating the putro-adyynamic state, so has it been often confounded with other fevers, in which this state has predominated more or less. If we refer to the numerous histories of epidemic typhus recorded by writers from the close of the fifteenth century up to the present time, or even to the brief abstracts furnished by M. Ozanam, (*Hist. Méd. des Maladies Epidémiques, &c., et seq.*) we shall find, that although many of these, owing to the concurrence of circumstances developing a putrid or malignant disease, were instances of fever, either identical with, or very closely resembling that which I have described as such in the preceding section; yet many others—or even the majority—were true typhoids, in which the putro-adyynamic state was either early or prominently developed; the exanthematous eruption characteristic of typhus being succeeded or accompanied by the petechiæ indicating the approach of the septic condition, and being either mistaken for them, or for an eruption of malaria. Owing to this circumstance especially, typhus, low nervous, and putrid fevers, have been very generally confounded together. The essential characters of typhus were first distinctly traced by Sauvages; but Cullen mixed them up with the symptoms of those forms of low nervous or typhoid fever which occur sporadically. Even among modern writers, comparatively few have made the distinction, excepting Hildebrand, Foderé, Naumann, Peebles, and some others. True, or contagious typhus, has not been epidemic in England for many years; or, if it have appeared in a few places, it has not extended beyond them. In Ireland, however, it was extensively prevalent, particularly in the years 1817, '18, and '19; and in some parts of Scotland since that time. The fevers most commonly observed in England, and particularly in London, have been either synchoid, simple or complicated; or low nervous fever variously associated, and but rarely display-

ing a predominance of putrid or septic character. During 1836, '7, '8, '9, this fever was very prevalent in London and in several other places.

True typhus, although prone to assume a septic condition, especially when epidemic, and appearing under the unfavourable circumstances about to be noticed, yet may run its whole course without petechiæ, or any marked putrid symptom. It may, as shown by Hildebrand, be simple, or variously complicated; and, as remarked by Dr. Peebles, it may be benign throughout, or assume a malignant character, according to individual diathesis, the nature of the prevailing epidemic, or the mode of treatment. It generally presents itself as an epidemic, is contagious, and runs a uniform course, unless a predominant affection of some internal organ modifies its course, or prolongs its duration. It has been shown above that the *petechial affection* consists of minute stains, or ecchymoses, caused by the transudation of blood from the minute capillaries of the vascular *rete* of the skin, owing to the atony of these vessels, and the alteration of the blood; that it may occur in the advanced stage of any fever, even of the more inflammatory, or purely eruptive, when converted into an adynamic or typhoid state, by improper treatment, or the peculiar condition of the patient; and that it is not, in any sense of the word, an *eruption*, as it has been very improperly denominated by some writers. This change in the skin, which has been viewed as one of the chief indications of incipient putridity, or of a septic tendency, is very different from the eruption characterizing typhus. The *petechiæ*, or cutaneous ecchymoses, vary in dimensions from minute *stigmata* to large patches of *vibices*, and in the deepness or shade of colour. They very rarely appear at the commencement, even of the more putrid or malignant fevers, unless from peculiar depravity of constitution, or from causes affecting more especially the circulating fluids—

as impure air, imperfect nourishment, unwholesome food, or other injurious ingesta.

But the *exanthematous* eruption attending true typhus is as characteristic of it as the eruption of measles or of scarlatina; and, although observed by numerous writers, it has been confounded with petechiæ, with which it is often associated in the advanced stages of the fever, or with miliary eruptions. Hildebrand gave a description of it, as it appeared in the contagious fevers prevalent in Germany during the commencement of the present century; and Dr. Peebles has recently described it accurately and minutely, and as he saw it in Italy soon after the war. His description agrees with my own observations about the same period. This eruption appears in the early progress of a fever produced by human effluvia, when circumstances occur to promote them, or to prevent their dissipation. The animal miasm, whether generated by numbers crowded in a small space and confined air, or proceeding from a person affected by the disease, should be viewed as a poison affecting the human body in a specific manner, and causing fever with an eruption of a certain form, which propagates itself by the diffusion of a morbid effluvium in the surrounding air, or by its retention in various animal productions, or porous substances, when shut up from the air.

This eruption usually appears from the third to the seventh day of the fever, but it may be delayed till the twelfth or fourteenth day. It is of a florid, reddish, or reddish-pink colour; disappearing on pressure, but soon returning when pressure is removed. This circumstance is sufficient to distinguish it from petechiæ. The more exuberant resembles the measles, and has been mistaken for them; but it is more papillar, and rougher to the touch, being sensibly elevated to the eye; and, although sometimes grouped or crowded, it does not coalesce so much as measles, but each papilla is more or less separate. It is sometimes ve-

sicular, and followed by desquamation of the cuticle. It is occasionally indistinct, and may be then overlooked, and it sometimes approaches more nearly the miliary eruption. Hence it has been mistaken for this eruption in such cases. It is generally confined to the trunk of the body, the arms, and thighs, but it may cover nearly all the body. It rarely extends over the face or hands. In children it appears only on the trunk, or parts of it, and often scantily. It is sometimes evanescent, disappearing in one part of the body, and returning in another.—(*Peebles.*) It may be copious in some cases, and scanty in others, even in the same family. Owing to these circumstances, it may escape observation. It is not liable to recede early in its course; but if it disappear from injudicious treatment, or a faulty state of the system, malignant symptoms are apt to supervene.

In some cases the interstices of the skin between the papillæ are red, or erythematous. In these there are also increased suffusion of the eyes, redness of the tongue at the point and edges, redness of the fauces, as in mild scarlatina, and subsequent desquamation of the cuticle.

The foregoing description, it will be noticed, almost exactly corresponds with the description which I have given of typhoid fever. The nature, character, and progress of the eruption, together with the erythema, closely resembles the typhoid eruption which I have so uniformly observed during the progress of typhoid fever in nearly all sections of the United States for the last twenty years, that we can but conclude that Dr. Copland has confounded what he chooses to term typhus fever with the true typhoid of this country; that typhoid fever becomes essentially modified by the combined influence of animal and vegetable miasm, we have the most ample proof. In malarious districts, where intermittents and remittents are prevalent, typhoid fever, in addition to its ordinary progress and symptoms, not unfrequently manifests all the symptoms peculiar to aggravated



remittents. Again, in crowded cities, hospitals, barracks, and other situations, where large bodies of people are congregated, the zymotic effluvia may coincide with the typhoid poison, and so modify the disease as to embrace all the symptoms and characteristics which have been so elaborately described by Hildebrand, Copland, and others, under the head of typhus. Another form of fever, which has been minutely described by many writers, and which Dr. Armstrong has so thoroughly investigated, is unquestionably a modification of congestive or remittent fever, produced by the same zymotic influences. That Dr. Armstrong, in his investigations, confined his observations to the modifications of remittent fever produced by this idio-miasmata, we have the most ample evidence in the following statements:—

“My former belief was, that typhus fever arose from human contagion. But I have lived to feel it a duty incumbent upon me entirely to alter that opinion. The following case affected me deeply, and first led me to review my opinion on the subject,—the opinion, I mean, which I then entertained with regard to the origin of typhus fever:—

“About six years ago, shortly after I had published the third edition of my work on typhus fever, in which I had strenuously maintained the doctrine of human contagion, I met with a case of intermittent fever. In a few days the fever became remittent, and in a few days more it put on the continued character, and the patient died with all the most malignant symptoms of typhus fever.

“This case made a powerful impression on my mind; and I could not help asking myself whether it was not possible that the common ague of this country, the marsh remittent fever, and continued typhus fever, might be one and the same affection, modified by certain circumstances. I determined, at any rate, to re-investigate the subject; for I suspected I might have taken up as a prejudice, at college, the doctrine of contagion, and might have acted on that preju-

dice as a sacred truth. Few men have more contemptuous views of black-letter learning, and the dogmata of schools; yet the opinion clung to me closely, and I parted with it gradually, if not with regret. I investigated the subject afresh, resolved, if possible, to arrive at the plain truth, whatever it might be; and in six years the result has been, that I am perfectly convinced that what is commonly called typhus fever does not arise from malaria, or marsh effluvia; that it is intermittent, remittent, and continued; that it arises from infection; and that it does not originate from human contagion. It should be remembered that infection is not contagion. It is a state of atmosphere produced by the surface of the earth, and the air, which is limited to a certain space; and persons breathing it are subject to certain modifications of a similar disease.

“It is a very humiliating thing to the human mind to detect long-established error; but it has these two advantages:—it gives a man the satisfaction of possessing the truth at last; and besides this reward, it makes him more cautious in the admission of prejudices for the future. Nothing can satisfy the human mind, which contemplates the phenomena of nature around it, but the conviction of possessing the truth. The longer I have lived, and the nearer I have advanced, step by step, to the grave, the more I am convinced how small is the amount of what I know; and while I feel the most perfect humiliation that I know so little, I am bound to make the most public acknowledgment of the full extent of my ignorance. In fact, having discovered my error, the only reparation I can make is by such an acknowledgment.

“I have often been amused, and sometimes surprised, on communicating the change of my views to my acquaintances and friends; several of them have, however, though many have not, become converts to my opinion. If I mention the subject to one man, he shrugs his shoulders, and seems as

if something had stuck in his throat. If I speak of it to another, he cocks his eye into one corner, and smiles sarcastically. A third shakes his head, and swears that the doctrine of contagion is true. A fourth strokes his chin, makes a dead stand, and confesses the matter requires farther consideration. If you will stroke your chins, and make a similar declaration at the end of this lecture, with a resolution to follow up the investigation, I shall be perfectly satisfied.

"I shall now repeat the facts and arguments which I have used here for years, and which have found their way into print, without any acknowledgment of, or allusion to, the source from which they originated.

"There are many reasons for supposing that typhus fever arises not from human contagion, but from malaria, or marsh effluvia; and the six following are, in my mind, perfectly conclusive:—

"1. Typhus fever arises in single cases, at the same time, in places remote from each other.

"This is the fact in London; and not only so, but it is the fact in the country also, that typhus fever takes place at the same time in single cases, at remote situations, in places, and among persons where, and with whom, there has been no communication or contact, or intercourse of any kind.

"Does the doctrine of contagion account for this? Certainly not.

"2. It often attacks several persons at one time, and in one place, where it has not before existed.

"This is a very remarkable circumstance. I have the history of fourteen cases of typhus fever in a school, where no such fever previously existed.

"It attacked some of the fourteen boys in one day.

"Two ladies, sisters, had been in the country, during which time their house in London had been shut up. When

they came to town their strength had become impaired, and they were both attacked by typhus fever.

“Does the doctrine of contagion account for this? Certainly not.

“3. When several are thus attacked, some cases generally put on the remittent or intermittent character.

“Trace the history of all the cases minutely backward, and it will generally be found that the affection in some of them has put on, in the beginning, the remittent character, between which there is a mere shade of difference; for they have some characters in common; and it is allowed, I believe by all, that they have a common origin.

“Does the doctrine of contagion account for this? Certainly not.

“4. The intermittent, remittent, and continued forms of fever, with their peculiar symptoms, pass and re-pass into each other.

“The intermittent will become remittent, the remittent will become continued, the continued will become remittent, the remittent will become intermittent.

“Does the doctrine of contagion account for this? Certainly not.

“5. Typhus fever prevails most remarkably in particular places.

“The common belief is that typhus fever prevails only in crowded situations; but this is not true. It may readily be shown to be a perfectly erroneous opinion, for typhus fever exists in some of the most open districts in London. It prevails in one of the best built squares in town. It prevails in parts and patches of London. With a map of London before me I could point out distinctly where it occurs; where the earth's surface is filthy, and the drains are imperfect. Here it has prevailed, passing under various names; but when the earth's surface has been cleansed, and the drains have been purified, the disease has disappeared.

I could point out places where the disease almost always prevails. There is one particular district which borders on two parishes, where typhus fever has prevailed for the last sixty years, and where it still prevails. It is so marked, that on a map you might circumscribe it with a line. In the borough typhus fever prevails remarkably. Some time ago a family were brought into the Fever Hospital with typhus fever. The account they gave of themselves was, that an individual next door had fever, and that they visited him and caught the disease. Human testimony, however, is not always to be depended upon. The name of the family was Jay, and they lived in White Square, Clapham. The case of fever next door was one of scarlet fever, and had occurred four months previously. On farther investigations of the cases of this family, I found that all but one originated in intermittent and remittent fever. Running round the whole of this square is an open common sewer; and if typhus fever occur in Clapham, it is sure to be in that square.

“Typhus fever prevails very remarkably in another village, which is one of the most beautiful in the neighbourhood of London.

“I know two ladies, who had typhus fever, who were living in a very airy square. The house was built on dry ground; but there were open sewers in the square, which rendered the inhabitants liable to typhus fever.

“I know an old practitioner, upwards of seventy years of age; and in the whole range of his recollection typhus fever has prevailed in a certain district, and there it still is prevalent. The earth there is unclean, and the drains are bad.

“I was once looking at a house, which I had some thoughts of taking; but a medical man warned me against it, as there was always typhus fever there, and on that account a family had just left it. It was in a very airy district, but malaria prevailed there. I could mention many other parts where it prevails, but these may suffice.

“Is this fact explained upon the doctrine of contagion? or can it be explained upon that doctrine? Certainly not.

“6. The rise, progress, and decline of typhus fever, are connected with certain states of the earth and the air.

“To give a few examples:—Typhus fever has prevailed remarkably since April, 1824, in and about London, but certain places have been remarkably exempt from it; for example, Islington, Wimbledon Common, and the higher parts of Kensington; but it has been exceedingly prevalent in some of the lower parts of Kensington; and in all these situations which have been exempt from typhus fever, the soil is dry and gravelly.

“In one part of Norfolk there is a district, of which several thousand acres are sometimes covered by a continuous wave, and when the water subsides, leaving the slime exposed to the sun, then continued, remittent, and intermittent fevers occur very remarkably. In the period I have mentioned, since April, 1824, all these parts were under water; and while that was the case not a single instance of typhus fever occurred.

“Typhus fever prevails remarkably with certain states of the earth and air.

“I attended a very respectable tradesman, labouring under a remarkably bad attack of typhus fever. It was such a case as would have been called plague in the time of Sydenham. He had knotted glands, and carbuncles, and black petechiæ. He was one of four or five individuals who transacted some business in a nobleman’s kitchen; he was sickened at the time, and in common with all the other individuals had an attack of typhus fever.

“A friend of mine had the drains in his house cleaned, and during the operation the inmates were attacked by typhus fever. He ordered a dirt-hole in his house to be cleared out, and himself and three inmates were attacked by typhus fever.



“Two ladies, sisters, (to whom I have already alluded in this lecture,) went into the country; and during their absence the house, which is situated in one of the squares, was shut up. When they came home, they were both attacked by typhus fever.

“There is one house in the borough, where typhus fever has prevailed for a series of years. I have attended three individuals in that house under typhus fever; and I was informed that no family had entered it for some years, part of which had not been attacked by typhus fever in it. A common sewer runs close behind the house.”

After making most thorough researches and observations relative to the nature and character of typhus fever, I can only reconcile the conflicting opinions by concluding that, while one class of observers and writers have confounded typhus with genuine typhoid, modified by idio-miasmata, another class have made their observations upon the modifications of remittents and congestive fever, modified by the same influence; and that the only systematic division that can be made of fevers, which is founded in the nature and character of the affection, is—1st, vegetable, malarial fevers, produced by the influence of vegetable miasmata, which include all the varieties of intermittent and remittent; 2d, exanthematous fevers, which include small pox, typhoid fever, scarlatina, measles, &c.; 3d, symptomatic, or zymotic fever, which embraces all the varieties of exanthematous and miasmatic fevers, modified by idio-miasmata.

### ERUPTIVE, OR EXANTHEMATIC FEVERS.

When we take a survey of fever, we notice a certain form of disease characterized by a peculiar exanthemata, and other symptoms so entirely dissimilar from all the forms of miasmatic and idio-miasmatic fevers, that they require a separate and special consideration. The principal forms of

exanthematic fevers are—*Typhoid Fever, Small-Pox, Measles, Scarlet Fever, Erysipelas, Vaccina, Variola, Herpes, Miliaria, Lichen, Urticaria, Roseola, Erythema, Lepra, Psoriasis, Ichthyosis, Impetigo, Elephantiasis, and Molluscum.* Among the principal eruptive fevers are Typhoid Fever, Small-Pox, Scarlatina, Erysipelas, and Measles. Typhoid fever I have already considered, and it now only remains for me to offer a few suggestions relative to the character of the other forms of exanthemata and eruptive fevers in general. Small-pox, or variola, (from the Latin *varius*, spotted,) next to typhoid fever, should demand the consideration of the physician.

“The Greeks and Romans knew nothing of small-pox. It is very true that Hahn in former times, and Dr. Willan and Dr. Baron in our own, have laboured diligently to prove the contrary. Mr. Moore, too, has been no less anxious to convince us that small-pox was known in China and Hindostan even before the time of Hippocrates; but I am very incredulous on these points, and am borne out in this skepticism by the opinions of Dr. Friend, Dr. Mead, and many other physicians of great learning, and equally indefatigable in research.

“In the writings of Alexander Trallianus, who lived in the first half of the sixth century, we have a brief description of the whole circle of medical science as it existed in his days. No allusion to any complaint exhibiting the character of small-pox is there to be met with.

“The first notice of a disease that looks like small-pox is to be found in a chapter of Procopius, ‘De Bello Persico,’ (lib. ii., cap. 22,) where he describes a dreadful pestilence which began at Pelusium, in Egypt, about the year 544, and spread in two directions, towards Alexandria on the one side, and Palestine on the other. This disease, he says, was accompanied by buboes and carbuncles. So far it resembled the Egyptian plague; but, on the other hand, Pro-

copius distinctly states that it raged independently of all seasons; that it spread into Persia and through the whole interior of Asia, and did not confine itself to the shores of the Mediterranean and Red Seas; that it spared neither age nor sex; that it affected the whole human race alike; that it was a new disorder, so little understood by the physicians of those days, that many recovered whom they had given over as hopeless, and many died whom they had pronounced safe. It is stated, also, that it was peculiarly severe in pregnant women. All this looks very like small-pox.

“Whether this epidemic was or was not small-pox, may be doubted; but certainly, within a short time afterwards, very unequivocal traces of small-pox are to be met with in the countries bordering on the Red Sea, for we read of caliphs and caliphs’ daughters being pitted. Mr. Bruce, the celebrated Abyssinian traveller, wishes to fix the first epidemic of small-pox to the era 522, which corresponds sufficiently near to the date of this plague described by Procopius.

“Small-pox had certainly been known for several centuries before it was described. Rhazes (910) is the first author who mentions it; his description is clear and full, his theory childish in the extreme, and his practice very bad. Avicenna and Hali Abbas, the Arabian physicians who succeeded Rhazes, also mention variola, adding some facts to those already described.

“From the East small-pox travelled to the West, whether slowly or quickly we have no means of ascertaining. It appears to have reached England towards the close of the ninth century. The word variola is to be found in several Latin manuscripts preserved in the British Museum, of date decidedly prior to 900. Exorcisms to ward off the dangers of this new plague are to be found addressed to St. Nicase. The term variola, the diminutive of varus, a pimple, is obviously of monkish origin. The monks were

the depositories of all the little medical learning of those times. The term *pock* is of Saxon origin, and signifies a bag or pouch. The epithets *small* in America and England, and *petite* in France, were added soon after the introduction of the grand or great pox in 1498."

Small-pox first visited the American continent in 1492. It made its first appearance in Mexico; and in 1666 it appeared in Boston, and subsequently in all portions of the United States.

Inoculation for the small-pox was first practised in Constantinople about the year 1700; but it was not until Lady Mary Wortley Montague had her daughter inoculated in 1721, that physicians had their attention called to the improvement, and then, as I have stated in another part of the book, she could not prevail upon the profession to adopt the experiment until after the people had repeatedly demonstrated the utility of inoculation in modifying the disease. Inoculation had a powerful influence in modifying the severity of variola; and up to the period in which vaccination was introduced by Dr. Jenner in 1770, small-pox had become much less prevalent and essentially modified in its character; but it remained for vaccination to completely disrobe small-pox of its deathly power. Vaccination, however, has its evils as it is practised at the present time. Most of the virus used by the physicians is that which has passed through the system of persons affected with syphilis, scrofula, cancer, phthisis, &c., &c.; and from the frequency with which persons, previously exempt from these maladies, are attacked with them after being vaccinated, we have every reason to infer that the vaccine virus is contaminated with those poisons; consequently physicians cannot observe too much pains to obtain either the genuine cow-pox, or the vaccine virus that has passed through the system of those who are entirely exempt from any constitutional contamination. The symptoms of small-

pox are those which mark the four periods into which the disease is naturally divided.

1. *The Period of Invasion.*—This period usually occupies about three days, and is manifested by lassitude, languor, restlessness, gaping, stretching, petulant and sullen disposition, which are accompanied or soon followed by chills, rigours, and the usual symptoms of the cold stage of fevers. Towards evening these symptoms are succeeded by hot, dry skin, pain in the head, and serobiculus cordis, which is increased on pressure, loss of appetite, nausea, and in some cases, vomiting and lumbago. During the second and third day the sleep is disturbed with troublesome dreams and sudden startings, with frequent horripilations or ereeping chilliness, which is soon followed by heat, fever, flushed face, occipital headache, and, in children, with frequent convulsions.

2. *The Period of Eruption.*—At the end of the third day, or on the morning of the fourth, a series of small, red, circular points or papulæ, in which form the variolous eruption first presents itself, are not prominent above the surface in which they are seen; but, by passing the finger over them, they can be easily and distinctly felt. They are of the size of a pin's head, are round, hard, movable and rolling under the finger, and are evidently situated in the substance of the skin. These minute, isolated, tubercular tumours, increase in diameter and in prominency, advance upon the surface, become slightly elevated above it, and gradually rise into distinct pimples. In the course of the first day, or by the time they are twenty-four hours old, they become rather more globular in form, have a regularly-formed ring of inflammation at their base, and assume the usual appearance of rising pustules. They now go on increasing in breadth and elevation, and, on the commencement of the second day, present light, transparent specks at their summits. At the first inspection these shining,

semi-pellucid specks appear as if they were the effect merely of the distention of their cuticular covering, caused by the rising pimple pressing against it, and thus giving to it a polished and glistening appearance; but they are, in fact, the seat of rising vesicles, for in the course of the second day, but sometimes not until the third, the eruption loses its papular character, and becomes visibly and truly vesicular. The vesicles are at this period, however, confined to the tops of the pimples, and contain a drop of limpid secretion. During the eruptive stage the pimples are painful when pressed; and when they have reached their vesicular state, they seem to be planted upon well-defined tubercular bases, which are perfectly distinguishable by the touch. The inflammation attending the disease is of a phlegmonous kind; and the redness, both of the pimples and skin, subsides and disappears under the finger, and on stretching the surface; but the hardness and projection of the eruption continue to be felt and seen. The true seat and structure of the eruption, during the eruptive period, have been accurately ascertained by dissection. This has established, what indeed the sense of touch and other methods of examination had indicated, that the small-pox pustule is originally formed in the substance of the cutis. The little tubercles, soon after they are formed, are discovered, on dissection, to be located in the reticular tissue of true skin, occupying, as it were, little cells expressly formed for them. They resemble regularly-formed bulbs, are reddish exteriorly, of an ash colour interiorly, and are evidently cellular. If, on the second or third day after their appearance, these bulbous tubercles are divided by incision, and examined by means of a magnifying lens, a minute quantity of a serous fluid may be discovered in them, retained by small, thin walls, or filamentous partitions; which have not, however, as yet the appearance of a regular and symmetrical structure. The febrile symptoms on, and during the appearance of the eruption, subside; and when the eruptive



process is completed, the patient, particularly if it be a child, is frequently relieved from all the distress and uneasiness which attend the fever. The pains of the head, back, and loins, and the increased heat of the system, are much diminished, and occasionally entirely vanish. The eyes and tongue regain, in some measure, their natural complexion, the pulse becomes more regular, and the organs of digestion and of secretion resume, in a degree, their natural and healthy functions. Patients usually complain of soreness in the throat during the whole time occupied by the period of eruption, and this increases in degree as the pustules increase in size and number. As the eruptive process goes on, the regions which are successively invaded by the pustules, gradually swell and redden; and in grown persons the eruption is very frequently attended by a profuse and constant perspiration. After the breaking out of the eruption, the pocks, on whatever part of the body they may exist, all pursue the same march, varying a trifle, perhaps, in appearance in different regions, according as the texture of the skin differs in thickness and vascularity, and by the time the pocks which first appeared become vesicular, those which succeed them are in different stages of progress, and the eruption consequently presents a variegated and multiform appearance. The pimples, after having passed into the vesicular form, as already described, increase in diameter and elevation; and by the fourth day the tubercles seem to have emerged entirely from the substance of the skin, and are quite prominent above, and are situated, as it were, upon its surface. Their whole superficies is now converted into a vesicle, which fills and assumes a rounded or hemispherical form, and soon presents a slight depression in the centre. This depression differs in degree in different pustules. In some it is quite evident, whilst in others it is hardly perceptible, or does not exist. It is usually considerably deep in the eruption on the face, when

that on the extremity remains rounded and globular. When the depression does exist, it is "produced by an adhesion of the cuticular membranes to the inflamed cutis, in consequence of the effusion of coagulable lymph; which also forms a cyst to confine the matter, and thickens the rete mucosum and cuticle." The pustules, which are now of a pearl or ivory colour, are surrounded by a red circle, and measure from one to two lines in diameter. They are tender on pressure, and are still distinguished by hard tubercular bases. They subside, but do not disappear, on pressure, or by distending the parts in which they exist. Their bases, however, communicate a hardness and resistance to the touch, whilst their superficies are comparatively soft and yielding. These peculiarities, however, are not common to all of the pustules at this epoch; some of them more readily give way under pressure, and are more yielding and elastic than others, owing probably in part to a greater comparative quantity of secreted fluid which distends them, and to some difference in the compactness of the texture in which they are situated. Dissection of the pustules, on the fifth or sixth day of their age, demonstrates that their structure is cellular, and that the cells are filled at this period of their progress with a diaphanous secretion, and that they are separated from each other by thin partitions, which converge to a central point. This structure is easily recognised in the superior portion of the pustule, by dividing it by a transverse incision from above downwards. The structure of the lower or deep-seated portion of it is more dense and compact; but is still cellular, and is of a deeper colour than the superior portion, and contains a little fluid. In puncturing the pustules at this time, the secreted matter will usually flow out at once; which shows that although it is contained in cells, yet these are not distinct from each other, but that there is a free opening and communication among them. The pustules vary considerably in size, age, and ge-

neral appearance. When about five days old they are hemispherical in shape, are bounded by a red circle, and their fluid contents gradually assume an opaque and turbid appearance. Whilst these changes are taking place in the pustules, which are the first to break out, those which succeed them gradually pass through the same changes, and the parts which are thickly studded with them inflame and swell, and frequently acquire a damask rose colour. As the pustules increase in size, and become filled with matter, the intermediate spaces inflame, and become infiltrated with effused lymph, which occasions some general swelling of the cutaneous surface. The eyelids are the parts which first begin to swell, and they frequently swell to so great an extent as to close the eyes, and produce temporary blindness. In some instances they are so much infiltrated and distended, that they resemble shining, inflated bladders, drawn over the eyes. The other parts of the face soon swell in proportion, and present a polished and bright red surface. The swelling of the face is sometimes so extensive, that its general outlines are completely destroyed, and the peculiar features of the individual are no longer to be recognised. Immediately after the face, the hands, the fingers, the body, and the feet swell in proportion to the number of the pocks which are on them. The whole head is at the same time tender and painful, and it is with much suffering that the patient raises or moves it.

*Period of Suppuration.*—As soon as the suppurative process takes place, the surfaces of the pustules begin to lose their smooth and semi-transparent aspect, and to grow rough and whitish. This is the first sign of commencing suppuration. As maturation proceeds, the complexion of the pustules continues to grow more opaque, and to assume successively a milky and light straw, or cream colour. During this process small, well-defined, circular specks, darker than the rest of the surface, appear in the middle

of most of the pustules. These little specks on the first formation are rendered very apparent by means of a magnifying lens, and the cuticle which covers them appears somewhat dry, and slightly scaly. They increase in size from the centre to the circumference, until the whole superficies of the pustules assume in a measure the same opaque and purulent appearance, and until desiccation actually commences. At this period of their progress the pustules cease to communicate that resistance to the touch which distinguishes them during their vesicular state; and, instead of feeling firm and hard, they are now comparatively soft, and the matter in them evidently fluctuates under the pressure of the finger. The fever, which subsided on the breaking out of the eruption, re-appears at the commencement of suppuration, and rages with greater or less violence till desiccation takes place. It is announced by chills, which are succeeded by heat, headache, quick and hard pulse, thirst, furred tongue, by a disposition to sleep, coma, and sometimes delirium. The parts which are the most thickly studded by the pustules, are commonly the most swollen, inflamed, and painful. The hands and feet of children usually swell a good deal, even when there are but few pustules on them, and adults are almost constantly troubled with a free, and frequently a profuse salivation. The secretion of saliva is attended with hoarseness and pain, and with a peculiar and very disagreeable odour. The urine is commonly high-coloured and muddy; and the dejections are frequent and liquid in children, whilst in adults they are often suppressed and hard. The general symptoms continue with varied severity, until the pustules on the different regions of the body become entirely matured, and begin to dry up. The pustules on the face, or those which first break out, are the first in which suppuration commences, and is soonest completed. Those on the extremities are the last to suppurate. As the pustules on the different regions,

and even on the same parts of the body, do not pass into their suppurative stage all at the same moment, but at different times and in succession, the eruption consequently exhibits a variegated appearance at the time that the oldest pustules are in a state of complete suppuration. As soon as desiccation commences in the pustules the febrile symptoms abate, and vanish as the process of scabbing proceeds. The areolæ surrounding the pustules, and the swelling and turgescence of the parts on which they exist, decline, and soon disappear. The scabs fall from the face from the twelfth to the fifteenth day after the appearance of the eruption, and from the fifteenth to the eighteenth day from the commencement of the febrile attack. In the course of two or three days more, the scabs on the other parts of the body fall off. Such are the usual symptoms and appearances of the small-pox in its distinct form.

*Variola Confluens*.—In the other form of the affection, however, (which is called "*variola confluens*," ) the pustules are very numerous, and run together. The feverishness is infinitely more violent, and rather of a typhoid character; the pulse is not so strong, the patient is exceedingly weak, and there is delirium. There is often so violent an affection of the head, that it produces coma; and the eruption not unfrequently begins early, even on the second day. The pustules are not only far more numerous, but they are smaller, flaccid, and not filled as they should be. Their quality, also, is bad; for, instead of containing a creamy, "laudable" pus, the contents are brown,—perhaps thin and serous; and perhaps there is a brownish, ichorous fluid, rather than genuine pus. They not only run together; but, from not being well filled, they appear more or less flat.

*Attendant Symptoms*.—The feverishness, in this form of the disease, is very little lessened on the appearance of the poeks; and at the end of the eruption it is aggravated very much. Secondary fever, of a very violent character, comes

on. The symptoms occurring in other parts, are also very severe. There is much more "running" of the mouth, and much more inflammation of the fauces, than in the distinct form; and, in infants, there is sometimes violent diarrhœa. In this latter instance, the lower part of the alimentary tract suffers great irritation. Frequently, too, between the pustules, there are petechiæ, vibices, and ecchymoses;—there are, in short, red, dark-coloured spots, of various sizes. Sometimes there is bloody urine, and sometimes blood appears in the evacuations. The secretions are very unhealthy; and there is an exudation all over the body, so that the person emits a very offensive smell. Now and then, patients labouring under this form of the disease, die rather suddenly. The consequences of this species of the disease, too, are more severe than in the other form. In fact, it is "*variola confluens*" that, for the most part, leaves such terrible consequences; such as blindness, phthisis, and diarrhœa;—the latter of which ends in ulceration of the intestines.

*Complications.*—Such are the ordinary phenomena of the natural small-pox, in its distinct and confluent forms, when it occurs in persons previously in good health, and of sound constitution. But it must be remembered that this disorder may attack those who may be labouring, at the time of seizure, under some other disease, such as pneumonia, whooping-cough, hepatitis, or consumption; and, farther, that these and other disorders may come on, unexpectedly, at any period, (early or late,) during the progress of small-pox. An infinite variety of accidental symptoms may thus be superadded to those regular symptoms already enumerated. Besides which, small-pox may occur in persons of a weak habit, or in constitutions exceedingly exhausted, and unable to cope with a disease of such severity. It may occur, for instance, in those who have but recently recovered from a severe typhus or scarlet fever. In these cir-



cumstances we observe a very tardy eruption; collapse, without advance of eruption; or, in a case somewhat more favourable, an abundant formation of large blebs, containing a thin ichor, with a very tedious and hazardous period of convalescence. To this latter form of the disease the old writers gave the name of the "*watery, or bladder-pock.*"

*Occurs only once.*—The disease rarely occurs more than once; and, although we may all see instances of its secondary occurrence, yet these are exceptions to the general rule. Like measles, however, and scarlatina, it *may* occur more than once.

*Co-existent with Measles.*—It was a dogma of John Hunter, (an assertion without proof,) that no two specific diseases could exist, at the same time, in the same body; but this is untrue. We see persons labouring under itch and syphilis at the same time; and there are plenty of instances on record, of small-pox co-existing with measles and cow-pox; though, in general, one disease runs its course in the body, and then the other. It is mentioned in the "*Edinburgh Medical Commentaries,*" that measles and small-pox occurred simultaneously in sixteen children. Out of forty-three children who were inoculated, sixteen were at the time labouring under measles; and both the diseases went on together. This occurrence took place at the Foundling Hospital in Dublin.

*Effects.*—Pustules frequently form around the eyes, and on the cornea itself; and there is often ophthalmia, which not unfrequently (in the violent forms of the disease) produces albugo, or staphyloma. Formerly a great number of persons were rendered blind by the small-pox. When the disease is over, it frequently leaves scrofula. Persons may have enlarged glands of the neck, or they may have enlarged mesenteric glands, or they may have phthisis. Frequently it leaves rupia and cethyma. Diarrhoea, too, is not unfrequently left after it; and the mucous membrane of the intestines sometimes falls into chronic inflammation.

Among the mucous membranes, those of the larynx and trachea frequently suffer much. Many children die, from the upper part of the trachea being blocked up with a thick, tenacious mucus, and much swollen. I have frequently examined the larynx of children, who have died of this disease, and its state has been such as to astonish me. There has been great inflammation; and so great an effusion of thick stuff, as very nearly to block it up.

*Morbid Appearances.*—The following is a summary of the principal results deducible from the investigations of Dr. Petzholdt, into the morbid appearances found in the bodies of persons dying of small-pox:—

“1. There occurs softening of the undermost layers of the cuticle; and, at a later period, destruction of the connexion with the cutis.

“2. Orifices are never observable in the cuticle covering pocks.

“3. What is called the ‘pit,’ or ‘umbilicus,’ is produced by the retention of the cuticle by the excretory ducts of the cutaneous glands.

“4. All pocks have not a pit, or umbilicus.

“5. The pit, or umbilicus, never exists in pocks seated on the palm of the hand, or sole of the foot.

“6. On the base of the pock, and consequently on the base of the cutis, the orifice of the gland can be seen; except in the palm of the hand, or the sole of the foot.

“7. The portion of the surface of the cutis not covered with pocks, is also in a morbid condition.

“8. The vessels at the base of the pock exhibit marks of inflammation; those at its circumference, marks of congestion only.

“9. The (so-called) ‘wind-pocks’ are by no means empty.

“10. The cutaneous glands are generally swollen in small-pox.

“11. The excretory ducts of the glands, when destroyed, as well as the hairs that fall out, are regenerated.

"12. The mucous membranes of persons affected with small-pox, often exhibit inflammation, with the formation of vesicles and ulcers.

"13. Vesicles, and superficial excoriation, are met with on the tongue.

"14. On the pharynx, and back part of the mouth, there are never pocks; but the glands there seated are much distended, and have very wide orifices.

"15. There occurs softening of the epithelium of the œsophagus, rising into pustules.

"16. At a later period, the epithelium is completely destroyed.

"17. Ulcers are met with in the œsophagus; but never with *perforation* of the proper mucous coat.

"18. No pocks are found in the stomach and intestinal canal; but there occurs destruction of the papillæ of the mucous membrane, particularly in the small intestine.

"19. There is often denticritic, vascular injection of the mucous membrane of the alimentary canal.

"20. Ulcerated parts are occasionally found in the mucous membrane of the nasal fossæ.

"21. Vesicles form in the trachea.

"22. Ulcers occur in both larynx and trachea.

"23. The mucous membrane of the genital organs is free from pocks, except at its junction with the external skin.

"24. On the serous membranes nothing more is (in general) to be seen, than what is found after their inflammation in other diseases.

"25. In a few cases, an eruption was found on the serous coverings of the spleen and liver."

#### TREATMENT.

In addition to the treatment that I have given in another portion of this book, I would state that after giving

the free purge, if I am called to treat the case in the early stage, a thorough spirit sweat should be administered. This can be done by placing the patient on a Windsor chair, with two blankets, one applied in front, and the other to the back, a cupful of alcohol placed under the chair, and set on fire, and allowed to burn until free perspiration is produced. After the sweat, the patient should be thoroughly sponged, wiped, and placed in bed; and, instead of the infusion that I was formerly in the habit of giving, add thirty grains of triturated macrotin to a tumbler half full of water, and give one teaspoonful every half hour, or hour, during the stage of maturation. If there is fever, aconite or veratrum, as previously recommended, should be given. If inflammation of the fauces should prove a troublesome symptom, a mild solution of the chlorate of potash and hydrastis should be used as a gargle. In some cases, where angina is very severe, in addition to the gargle, I have found hot packs, applied to the throat, of much benefit; and where the disease assumes a confluent and an erysipelatous character, quinine and muriated tincture of iron are valuable remedies. A prescription that I have been in the habit of using, is the following:—

R. Muri. Tinct. Ferri.....ʒj.  
 Sulph. Quinine.....gr. x.  
 Syr. Simplex .....ʒiij. ℞.  
 Sig.—One teaspoonful every two hours.

During the entire progress of the disease, the body should be thoroughly sponged once a day, and wiped dry; afterwards the following application should be made to all portions of the body, where there are pustules or symptoms of inflammation. Take creasote, thirty drops; olive oil, one pint. Mix, and use as directed above. If the pustules, at any period, should present a disk appearance, and there should be symptoms of fever, a liberal amount of beef broth, wine whey, and, in some cases, quinine, iron, and hydras-

tin, should be freely administered. These symptoms are more liable to occur from the seventh to the tenth day, and have usually been described under the head of secondary fever. In cases where there appears to be a large amount of the small-pox virus absorbed, I have found much benefit from the free use of diuretics, such as barosmin, chimaphilin, &c. To prevent pitting, iodide of collodion should be applied to all portions of the face, and re-applied as often as every twenty-four hours. The iodide of collodion may be made by adding ten grains of iodine to four ounces of collodion. Small-pox is frequently complicated with local inflammation, such as pneumonia, pleuritis, gastritis, hepatitis, &c. When these complications occur, they should receive a special treatment, as described under their respective heads. During the convalescence the system should be well supported by means of a nutritious diet; and, in weak and debilitated cases, by a liberal amount of milk punch, malt liquors, &c.

In some cases small-pox ophthalmia manifests itself as an obstinate and dangerous symptom. In such cases I have found the greatest benefit to result from the application of ten grains of hydrastin, triturated in two ounces of glycerine, and applied to the eyes in the form of an ointment. In cases where the mucous membrane is granulated, small doses of rucine, repeated at proper intervals, will be found a valuable remedy. If there is bronchial irritation, with cough, from one-half to one teaspoonful of the acetic syrup of sanguinaria, repeated at proper intervals, will afford relief.

### SCARLATINA.

*Scarlatina*, from scarlatino, scarlet.

The first well-authenticated account of scarlet fever is that given by Ludovicus Mareotus and Michael Herodia, who gave a description of the fever as it existed in Spain,

in 1610 and 1612. Sydenham first described scarlet fever as it existed in London in 1670, and Sir Robert Sibbald describes the disease as existing in Scotland in 1680. Of this disease Dr. Gregory remarks:—"Scarlatina, taken in its widest sense, is a fever sometimes inflammatory, sometimes typhoid, the offspring of a morbid poison gaining access to the body by the mode of infection only, characterized by a short period of incubation, an eruption rapidly developed, and an inflammation of the fauces, having a strong tendency to terminate by sloughing. In its mild form, the disease does not exist more than a week; but when assuming its aggravated type, it may be protracted to a month, or terminate fatally in a few hours. Such a disease does not, like measles, invade a large proportion of mankind during infancy; but having been undergone, the susceptibility to future attacks is exhausted. A *zuma*, *ferment*, or *poison*, must have access to the body before the blood is set in motion, so as to develop the phenomenon now called *scarlet fever*. The effects produced by that poison may be exerted on the skin alone, and then the accompanying fever is slight; or it may develop a more serious kind of ardent fever, and then the skin and throat both exhibit appearances. It may so seriously affect the whole system as to produce intense fever, in which case the throat receives nearly the *whole* shock, the skin being alone partially affected. Nay, in some extreme cases, the nervous system shall be so completely compressed and subdued by the virulence of the miasm, and the mass of blood so thoroughly poisoned and disorganized by it, that all the ordinary appearances of scarlatina are masked. Petechiæ, coma, and a sloughy state of the throat, alone appear. Life rapidly yields under such an attack.

"From this rude sketch of the effects of the scarlatina miasm, you will see that a gradation exists in nature from the mildest to the most malignant, and that the external



appearances vary with the character of the fever. A division of scarlatina into species has been made, but remember that it is artificial. Nature creates genera and individual cases, but species are the imperfect arrangements of man. With this reservation, I shall avail myself of the threefold division now in general use, and shall treat of the two extreme links in the long chain of phenomena, and the intermediate variety; that is, I shall describe to you—1st, *Scarlatina Mitis*; 2d, *Scarlatina Anginosa*; 3d, *Angina Maligna*.”

To Dr. Gregory's nosological arrangement of scarlet fever, I add that which has more recently made its appearance—*Scarlatina Diphtheritis*:—

“The poison of scarlatina, whatever aspect it subsequently assumes, has a very short period of incubation. It invaded my own family in 1839. Rigours occurred to one member of it on the last Saturday in April. On Sunday, languor and lassitude, with dryness of skin, were the chief symptoms. At 6 o'clock on Monday morning, eruption appeared. On the following Saturday, at 2 P. M., my eldest daughter sickened; so that the incubative period could not have exceeded seven days, and was probably only six. Withering says that he has known patients begin to complain as early as the third day from exposure to the contagion; and I cannot contradict the assertion, though I never saw incubation so rapid as this. We may fairly state the incubative period as varying from four to eight days.

“In the mildest form of scarlatina, it often happens that the first symptom is the rash. No febrile disturbance whatever has preceded. More commonly, there is a certain amount of fever, the symptoms not presenting any marked character. Rigours, heat of surface, vomiting, restlessness, thirst, languor, lassitude, muscular debility, and headache, are the chief complaints. On the succeeding day the rash appears. Some authors would persuade us that the rash may be delayed to the third, or even the fourth day from

the rigour. These observations, however, made when the diagnosis of measles and scarlatina was yet in its infancy, cannot be trusted to.

“The efflorescence in scarlatina mitis is first perceived on the trunk, arms, and thighs; very often nothing appears on the face, when these parts are covered with eruption. In less than twenty-four hours it spreads over the whole body. Every thing is rapid about scarlatina,—rapid incubation—rapid eruption—rapid course. Sometimes the redness is continuous, but much more generally it is distributed in patches of no definite shape. The colour is a bright scarlet, precisely that of the boiled lobster. When closely examined, it is found to consist of innumerable small red points, or dots. In the greater number of cases, the finger passed over the surface is not made sensible of elevation or roughness. Sometimes, especially on the breast, and parts kept very warm, the feeling of papulæ is given. This, however, can only occur when there is fever, and sufficient force in the heart’s action to distend the cutaneous capillaries. In the mild form of scarlatina I am now describing, this will not often happen. The redness of scarlatina, like that of erysipelas, disappears on pressure.

“For twenty-four hours the child is restless, and refuses his food. On the third day you will find him sitting up with his toys. The rash is receding. In two days more the little patient is convalescent. I have often examined the throats of children affected with the scarlatina mitis, and not seen the slightest trace of angina. The poison, therefore, may circulate without any throat affection. Well might Sydenham call this a disease in name only; it is, nevertheless, worthy your study, in order that you may trace the steps by which it ascends into the malignant cyananche.

“I now come to the Scarlatina Anginosa, the *primitive* type of the disease, or that from which all the other varie-

ties diverge. It is, as might hence be presumed, by far the most frequent form in which the miasm develops itself. *Scarlatina anginosa* is a disease which, more than any other that I know of, will call into play your pathological learning, and all your therapeutical skill. It is a disease which may be materially aided by medical art. It is a disease, in the management of which medical men are more apt to differ than perhaps any other. It is, lastly, a disease which, from its rapidity, leaves you little time for reflection. You must have studied it well beforehand, and determined how to act in cases of emergency.

“The Angina Maligna are distinguished by other true forms, by the irritable state of the stomach and bowels, vomiting, diarrhœa, precordial oppression, great dejection of spirits, small and fluttering pulse, dorsal decubitis, and the ash-coloured sloughs which early appear on the tonsils, and, in some cases, delirium, of a fierce and unrestrainable character.

“Angina maligna is unquestionably produced by a concentration of the scarlatina poison upon the fauces and glands of the throat; and if it be allowed to remain in that position, it will result in extensive disarrangement of its structure, and the formation of abscesses, or in extensive œdema. Either condition will most essentially interfere with the functions of respiration, and produce symptoms to correspond with the extent of the organic lesion, and imperfect arterialization of the blood. In what is denominated scarlatina maligna there is an absence of the angina, which is so prominent a symptom in the anginose form of the disease; and we have every reason to infer that it is produced by an accumulation of the zymotic poison in the blood, which, failing to be eliminated, either through the skin or emunctories, produces a disorganizing influence upon that vital fluid, and in many cases immediate and disastrous results. In this form of the affection the symptoms are more

obscure than in either of the two previous ones. As in scarlatina simplex, or angina maligna, the diagnosis cannot be very difficult; as in the simple form of the diseases the albuminous urine and lobster appearance of the skin are most conclusive evidences of its nature, while the anginose form is as easily identified by the peculiar affection of the throat, and the allied symptoms are evidences of its nature."

#### THE SEQUEL OF SCARLATINA.

The sequel of scarlatina is dropsy, convulsions, ulceration of the glands of the throat, neck, and kidneys, and disarrangement of the blood. The dropsy may depend upon softening of the mucous membrane, or portions of the kidneys; or it may depend upon local inflammation of the peritoneum, pleura, &c., &c. Convulsions occur as the result of irritating effects of the specific scarlatina poison on the cerebro-spinal nerves, and as the effect of the disorganizing tendency of the poison on the blood and other fluids of the body.

#### TREATMENT.

In addition to the treatment given in another portion of the work, I would say that in scarlatina maligna, and anginosa, every possible effort should be made to establish a full and complete re-action in the system during the early period of the disease. This should be accomplished by hot baths, hot packs, friction, with capsicum, lard, and pulverized camphor, in the form of ointment, to all portions of the body. Hot jugs of water, and capsicum, xanthoxylin, and other stimulants administered internally if required. The philosophy of this treatment must be apparent to every one when they consider that scarlatina is a disease dependent upon a specific virus introduced into the blood, which acts as a ferment, and, unless eliminated from the system through

the skin, lungs, kidneys, &c., will soon convert the blood and other fluids of the body into structure identical with itself. That the emunctories may accomplish the important work of freeing the system from this poison, all the organs and tissues must be aroused to the full extent of their capacity. This is what I understand by re-action. The fatal mistake in the treatment of eruptive diseases dependent upon specific poisons introduced into the blood, is, that while the poison acts as an anæsthetic, paralyzing all the organs and functions of the body, the physician neglects to counteract these influences by such remedies as he has at his command, so as to allow the eliminating organs to free the system from so noxious an agent. I have, in cases where it was important to maintain active elimination from the system, not only occasionally resorted to stimulating emetics, such as lobelia and capsicum, but to the alcoholic vapour-bath, and the frequent application of the camphor and capsicum ointment to the surface of the body, and a large sinapism to the entire spine. When the re-action is only partial, and difficult to maintain, I have found the following prescription to be most valuable:—

R. Keith's Strychnine.....gr. j.  
 Macrotin.....gr. iij.  
 Sac. Alba.....℥ss. Mix.  
 Ft. pulv. No. xij. S.—One every two hours.

In case the above, with such other active treatment as the practitioner may deem expedient, should not effect a complete re-action, hot brandy toddy should be given in connexion with the other treatment. After the re-action is thoroughly established, the only treatment essential is to maintain the eliminating process on the cutaneous surface, to give metastatic remedies, as directed in the other forms of scarlatina. The sequel of the disease should be treated as directed under the head of diphtheritis.

## DIPHTHERIA, OR DIPHTHERITIS.

As I have already stated, I regard diphtheria as one of the modifications of scarlet fever. I came to this conclusion after the most thorough investigation of nearly every form. The reasons for these conclusions are the striking resemblances of the diseases in many particulars, and the still more positive evidence that diphtheria frequently assumes the character of simple scarlatina; while, in other cases, scarlatina not unfrequently is converted into genuine diphtheria. My attention was first called to this subject some three years since, while treating a case of diphtheria in a family where there were five children. The two oldest had diphtheria. Some five or six days after, one of the youngest was attacked with scarlatina; and although they had not been exposed in any way only to the diphtheria patient, it passed through all the stages of genuine scarlatina. The next case was that of the fourth child, who had diphtheria. The cases so attracted my attention, that I at once instituted a most careful investigation relative to the identity of the two affections, and soon found that the diseases were not only closely allied, but that they sprang from the same cause, and were identical in nearly every particular.

But, in order to a more full understanding of these hitherto supposed independent affections, let us analyze their respective symptoms. In scarlatina, the child is seized with rigours and chills, lassitude, debility, albuminous urine, quick, wiry pulse, light, furred tongue, a hot, dry, and pungent skin, and in the anginose form of the disease, with congestion of the fauces, thickening of the lymphatics about the neck, and, not unfrequently, more or less catarrhal symptoms. In diphtheritis the patient first complains of lassitude, headache, loss of appetite, has rigours and chills, albuminous urine, active and quick pulse, a light, furred tongue, redness of the fauces, enlargement of the lymphatics



about the neck, a hot, dry, and pungent surface; and, in most cases, a copious exudation from the mucous capillaries of the upper air-passages. This exudation soon becomes organized; and patches of white, tough, fibrous membrane may be observed on the uvula, soft palate, and tonsils. It will be observed that the only essential difference in the general symptoms of scarlatina and diphtheritis are those which relate to the local affection, or the peculiar inflammation of the throat; and, even in this respect, in the anginose form of scarlatina, the symptoms are almost identical, with the exception that in genuine diphtheritis the exudation becomes converted into fibrous tissue, constituting the formation of the false membrane, whilst in scarlatina anginosa it is converted into pus corpuscles, producing a solution of the continuity of the tissue, and the formation of ulcers. Even in diphtheritis the existence of the membrane does not always prevent a solution of the sub-adjacent tissue, as I have seen many cases in which the membrane has been perfectly organized, but which became absorbed or disorganized in the brief period of from twelve to twenty-four hours, leaving deep, ragged, purplish ulcers. Again, as I compare the sequel of the two affections, I observe that in diphtheria the blood becomes disorganized, the kidneys granulated, the muscles soft, the nervous system prostrated, together with paralysis, albuminuria, dropsical deposits, and a general derangement of the gastric and hepatic functions. In cases where there is extensive œdema of the glands and tissues of the neck, ulcerations and chronic abscesses not unfrequently constitute a part of the subsequent difficulties. In scarlatina anginosa, and scarlatina maligna, I find all these conditions existing as the result of the acute form of the disease, and in the sequel of the two affections there are still less marks of distinction.

*Cause.*—When I came to examine into the nature and

cause of scarlatina, I observed the records almost uniform in attributing to it a peculiar or specific miasm; the precise nature and character of which they do not fully understand. This *materius morbi*, when introduced into the blood, either by endermic absorption or by inhalation, produces a series of morbid changes in the fluids, organs, and tissues, which is denominated scarlatina. When the poison acts with moderate intensity, and the recuperative and the eliminating powers are vigorous, the intensity of the poison is so modified as to constitute scarlatina simplex. In this simple form of scarlatina, as I have previously stated, the poison appears to be eliminated through the skin with such vigour as to very essentially preserve the integrity of the general organism. On the other hand, scarlatina anginosa is produced by a more intense impression of the specific poison upon the system by a less vigorous, recuperative, and eliminative force, and by the concentration of the *materius morbi* upon the mucous membrane, lymphatic, and adjacent tissues of the throat; whereas, in scarlatina maligna the overwhelming sedative impression of the scarlatina virus upon the cerebro-spinal centres produces great prostration, rapid disorganization of the fluids, and death, unless the intensity of the poison is modified by a most energetic and vigorous course of medication. In scarlatina diphtheritis, the specific poison, as in the case of scarlatina anginosa, is concentrated upon the fauces, producing inflammation and the organization of the exudation.

*Diphtheria assuming the form of Scarlatina.*—A child of Mrs. Z., aged three years, was seized with all the symptoms of diphtheria. Upon inspecting the fauces, a white, tessellated exudation appeared upon various portions of the mucous surface of the fauces. Twenty-four hours afterwards, on examining the membrane, it was found perfectly organized, and extending into the lateral, nasal passage and larynx. A hot-bath, stimulating friction, hot packs to the

throat, macrotin, quinine, and acetic syrup of sanguinaria, soon disorganized the membrane, relieved the throat symptoms, and produced a diffused scarlatina erythema over the entire surface. After this the case was treated as scarlatina simplex, and had an early and rapid convalescence.

The history of the above case is but a sample of a large number of cases, which have occurred in my practice within the last four or five years, where, by an energetic treatment, all the symptoms of diphtheria have been reduced to those of simple scarlatina.

*Scarlatina converted into Diphtheria.*—While diphtheria frequently assumes all the symptoms of scarlatina, scarlatina, on the other hand, not unfrequently takes the form of diphtheria.

A daughter of Mr. Z. was attacked on the 25th of November, 1862, with chills, fever, lassitude, headache, and loss of appetite, which was followed by scarlatina erythema on the morning of the 26th. On the evening of this day angina made its appearance, and on the next morning the fauces were completely lined with a diphtheria exudation. During this period the scarlatina erythema had entirely disappeared, and the disease presented all the symptoms of general diphtheria. Upon the administration of metastatic remedies, however, the erythema again made its appearance, connected with a mitigation of all the throat difficulties. What has occurred in this case, has frequently been noticed to happen in other cases; so that during the prevalence of diphtheria in this city, (Philadelphia,) in 1861, '2, nothing was more common than to witness well-marked cases of scarlatina assuming all the characteristics of diphtheria. From these observations, and other concurrent facts, I am inevitably led to the conclusion that diphtheria is only another modification of scarlatina.

*Symptoms.*—Diphtheritis usually commences with loss of appetite, lassitude, general debility, pain in the head,

constipation, scanty urine, and fever, alternated with chills. In some cases the constitutional symptoms are very slight, and do not make their appearance until after the throat symptoms. The first manifest difficulty of the throat is slight soreness, and difficulty of swallowing. As the disease advances, the throat becomes painful, and swallowing extremely difficult. In the commencement of the disease there is usually an extensive discharge from the mucous capillaries, of a thick, plastic matter, which is expectorated with considerable difficulty. Upon examining the throat, it will be found red, swollen, and the capillaries largely distended with blood. In patches there will be found a whitish, plastic substance, so firmly adhering as to be removed with difficulty. This membrane, as it is called, is the result of an imperfect organization of the albuminous portions of the blood, which has escaped from the diseased capillaries. In many cases this abnormal transformation occurs before the blood leaves the capillaries, as upon microscopical examination of a section of the mucous membrane before the diphtheritic deposit is removed, it will be found that the false membrane consists of a semi-fibrous structure deeply imbedded in the capillaries themselves. While the organizable portions of the blood are thus being converted into adventitious structure, the fluid portion is making its escape into sub-cellular tissue, producing œdema, and offering serious obstruction to the respiratory passages. Hence the breathing becomes hurried and difficult, the pulse quick, and, as a natural sequence, there is great restlessness and anxiety. In some cases the membrane forms rapidly, extending to the tongue, and dipping down into the trachea, presenting a complication of symptoms characteristic of angina and pseudo-membranous croup. In other cases there is an abortive attempt at the formation of the membrane, the parts increase in redness and swelling, and assume the appearance of erysipelatous inflammation.

In other cases small aphthous patches make their appearance, and rapidly extend themselves to the sub-cellular tissue, constituting large and indolent ulcers. The symptoms of these different forms may vary according to the severity of the case, and the age and constitution of the patient. The majority of fatal cases in the city, so far as I have been able to learn, occurred where the membrane extended to the trachea, producing asphyxia. In a few cases the disease has terminated in gangrene and mortification, or in death from exhaustion. While in other cases the throat symptoms readily gave way to a proper treatment, and to all appearance the patient was passing through a favourable convalescence, yet the skin was sallow, the bowels irregular, and the patient continued debilitated. In a few cases, where these symptoms manifested themselves, the patient was attacked with paralysis of one or both of the lower extremities, together with a general softening of the entire nervous system. In other cases, instead of the paralysis, a softening of the nervous system appears to progress slowly, until the patient dies from general inertia; or, as has occurred in a few cases in my practice, the scarlatina virus continues to work its disorganizing influence on the blood, and other fluids of the body, until the patient either dies from dropsical effusion, or from an absolute disorganization of the blood. In a few cases, after these symptoms had continued for a time, the patient was seized with hæmoptysis, or hæmatemesis, and death soon terminated the patient's life. In other cases I have known disorganization of the kidneys, liver, and lungs, to occur, and a long series of constitutional symptoms to exist as the result of the disease.

*Treatment.*—The treatment of diphtheria does not differ in many particulars from that of scarlatina. When called to treat the case in the early stage, it must be borne in mind that the affection is dependent upon a specific poison,

and that, in order to eliminate this poison from the system, all the emunctories should be put into full operation. This can be done by giving a spirit sweat, a thorough emetic, followed by an active purge of podophyllin and anti-bilious physic; after which the barosmin or apocynin should be given, to keep the kidneys in vigorous operation, and aconite to maintain free perspiration. To remove the local affection, flannel cloths, wet in the compound tincture of myrrh, capsicum, and lobelia, should be applied to the neck, over which should be placed a hot pack. The pack should be changed as often as every half hour, and applied as hot as the patient can bear it. As soon as the purge has operated the patient should be placed in bed, and jugs of hot water placed to the feet, and metastatic remedies given for the purpose of diffusing the poison on the skin. Among the best medicines for this purpose are the macrotin and serofularia. My method of giving these medicines is to add to a half tumbler of water one dram of the saturated tincture of serofularia, and give one teaspoonful every hour. Add to another tumbler twenty grains of the triturated macrotin, and give one teaspoonful every hour. Alternate the medicines, so that one or the other will be given every half hour. If there is much inflammation in the throat, a gargle of the hot decoction of *hydrastis Canadensis* should be frequently used. If, after pursuing the above treatment for twenty-four hours, the disease should not assume a favourable aspect, ten grains of quinine, five grains of hydrastin, and ten grains of capsicum, should be made into ten powders, and one given every two hours, in connexion with the other treatment. When the membrane has become fully organized, and shows a disposition to extend, the acetic syrup of sanguinaria, either alone or in combination with other remedies, will prove valuable. In a few cases, where the membrane has proved an incumbrance to the arterialization of the blood, I have ap-



plied a strong solution of the hot sulphate of zine, by means of a probang. In cases where deep aphthous patches presented themselves on the mucous surface, with a disposition to ulceration, rucine and baptisin, either alone or in combination, used as a gargle, and small doses introduced into the stomach, will soon arrest its progress. If the breathing should be difficult, a free emetic of the aetie tincture of sanguinaria and lobelia should be given. The surface of the body should be frequently sponged in hot soda water, and the patient allowed a liberal quantity of soft, nutritious food. After the active stage of the disease has passed, the eliminating process should be continued by constantly stimulating the various emunetories of the body, and the system freely supported by alnuin, iron, hydrastin, and other tonics. If softening of the nervous tissue occurs, with paralysis, hypo-phosphoric acid, in doses of five or ten drops, in combination with cyprapedin, given once or twice a day, will have a tendency to relieve the difficulty. If paralysis exist, from the one-sixteenth to the one-tenth of a grain of Keith's strychnine, in combination with two or three grains of hypo-phosphate of iron, given three or four times a day, will prove of value. Where the disease produces softening of the mucous membrane of the stomach, bowels, bronchia, &c., &c., one dram of the chlorate of potassa added to six ounces of syrup of hydrastus Canadensis, and given in doses of one teaspoonful every three hours, is a valuable remedy. When there is leucocythemia, and other diseases of the blood following the disease, I have found the following a most valuable remedy:—

R. Leontodin.....gr. x.  
 Alnuin.....gr. xx.  
 Iron by-Hydrogen.....ʒj.  
 Mix. Ft. pulv. No. x. Sig.

One to be taken four times a day, in a tablespoonful of cod liver oil.

At the same time allow the patient to take freely of cream, into which has been introduced a small quantity of capsicum. In cases where there is granulation of the kidneys, with albuminuria and dropsical deposits, hot stimulating baths, together with a proper use of helonin, apocynin, and ampelopsin, will usually effect a cure. If, after the diphtheria deposit on the mucous membrane is removed, ulceration should occur, the chlorate of hydrastin should be used, both as a gargle, and by means of a probang; and the external surface be kept constantly stimulated by means of a hot, stimulating liniment, and hot packs.

RESUME TREATMENT—ADDITIONAL TO TYPHOID FEVER,  
SMALL-POX, AND SCARLATINA.

The treatment of typhoid fever should be proceeded with, with great caution, especially in regard to the administration of active remedies; as all medicines which have a tendency to irritate the bowels, aggravate, rather than alleviate the disease. Notwithstanding these facts, the same principles which govern us in the treatment of other exanthematous affections, should be borne in mind, and all the emunctories of the body put into full operation, so as to eliminate, as far as possible, the specific virus from the system. This can be done by giving the patient a hot bath, or rum sweat, a free lobelia emetic, and warm water to cleanse the bowels. Then the treatment, as prescribed in another portion of the book, should be carried out. In addition to which, lately we have been in the habit of giving ten or fifteen drop doses of the saturated tincture of the *serofularia marilandica* every two or three hours, either in connexion with macrotin or alone, for the purpose of maintaining the eruption on the surface, as in all cases I have observed that the severity of the disease depends much upon the extent to which the poison is concentrated on the integument. In bad cases, where the typhoid eruption would recede rapidly, and the disease was connected with a vi-

tiated constitution, I have added twenty or thirty drops of hypo-phosphoric acid to one-half tumbler full of water, and given one teaspoonful every half hour, or hour, with much benefit. Where the disease is accompanied by great prostration, in addition to the previous treatment I have found the sulphate of hydrastin, in combination with ferri hypophosphite, to prove of the utmost value. When I published the first edition of this work, I was in the habit, with my professional brethren, of giving liberally of beef tea during the progress of the disease, especially during its convalescent stage. Subsequent observation has led me to abandon the practice only in such cases where the digestive and assimilating organs are in a healthy state; as under other circumstances the albuminous nutriment, instead of being digested, is decomposed and converted into carburated hydrogen gas, and only tends to distend the stomach and bowels, and produces other disorganizing influences of a most pernicious character.

#### TYPHUS FEVER.

In the treatment of typhus fever, the same general plan should be pursued that I have already prescribed under the head of congestive or typhus, with the exception that in the early stage of the disease I have found a good, active lobelia emetic, and a free rum sweat, to prove of the greatest value. Then apply the hot packs and stimulating antiperiodics previously directed, as with this additional suggestion I have proved the treatment adequate to the cure of all the cases which have fallen to my lot to treat within the last four years.

#### SMALL-POX, COW-POX, AND VACCINATION.

Of the treatment of small-pox I have already given the most essential portion of my treatment, both in the present consideration of this disease and in the first edition, so that

it only remains for us to speak of the prophylactic treatment; and this consists of a simple remedy, that is, vaccination. This should always be performed as soon as the child is of sufficient age. The best period is when the child is from three to six months old. This should be accomplished by selecting a pure lymph from a cow-pox pustule, on a healthy person, when the pox is about four or five days old. Then take a sharp lancet, and make frequent scarifications through the cuticle, and allow the arm to be exposed until all the blood that will flows from the superficial capillaries; then wipe the scarified portion with a soft sponge, or cloth, and apply the lymph by means of the point of the lancet. If the pure lymph from the udder of the cow can be obtained, all the better. All the after treatment that is necessary, is to notice the symptoms; and if there be fever, give a few doses of aconite, a warm bath, or such other treatment as the symptoms may indicate. The importance of vaccination should be fully impressed upon the attention of those who have children in charge; and in case that this almost positive use of preventing the disease has not been resorted to before the adult age, it should be then. The only important thing to be attended to is to see that the virus is of a pure character, free from scrofula, syphilis, and other infectious and contaminating diseases.

### RUBEOLA, OR MEASLES.

Rubeola, or Measles, the Rougeole of the French, the Morbilli of Sydenham and other old authors, is an exanthematous disease, characterized by the following symptoms:—A fever, with catarrhal implication, which, at the end of seventy-two hours, throws out an abundant eruption, consisting of minute confluent papulæ, slightly elevated above the surface of the skin, and subsiding in three, or at farthest, in four days; the catarrhal symptoms, in all normal cases, declining on the appearance of eruption, but

sometimes, especially in severe and irregular cases, continuing, or merging into those of pneumonia. The disorder, for the most part, occurs to all mankind once in the course of life; but having been undergone, the constitution remains for ever after unsusceptible of the same disease.

The leading features of the initiatory fever of measles are, I have said, catarrhal. I must describe them more in detail.

1. There is sneezing. I have seen both adults and children sneezing every five minutes, and really exhausted by it. Sneezing indicates a gorged and irritable state of the Schneiderian membrane.

2. The eyes are red and watery. There is epiphora, the great diagnostic on which nurses are wont to rely. While the measles are breeding, you will be sure to find the window-blinds down, and the curtains of the bed closely drawn. The slightest ray of light is painful. There is irritability of the retina, sometimes attended by inflammation of the conjunctival membrane.

3. There is a loud, dry, hollow cough, (*tussis sicca*.) The violence of this cough, on some occasions, will astonish you, as it did me many years ago, while attending a young Irishman, Mr. Webb, at Islington. It was not only loud, but incessant. The trachea and bronchi participate in the same kind of action (whatever be its nature) which takes place in the nose and eyes.

4. There is hoarseness, (*raucedo*.) The larynx is also implicated. In fact, the mucous structures generally of the head and chest receive the first impetus of the poison. I am not justified in saying that the action developed in them is inflammation. The membranes are only in a state of congestion, with increased irritability—a state which plethora, bad management, a cold season, or a bad habit of body, may convert into inflammation.

The appearance of measly eruption is very characteristic. It comes forth in a full crop, and rapidly reaches its climax. In regular measles the face is always first affected.

When closely examined, the eruption is found to consist of a congeries of minute papulæ, close-set, or confluent, and for a short time perceptibly elevated above the level of the surrounding skin. This elevation, or roughness, is most perceptible on the forehead. On the limbs it is scarcely to be detected. The colour of the measly eruption is a dingy red, very different from the bright scarlet hue of its rival. Hence the French name *rougeole*, or *fièvre rouge*. The difference in colour may easily be traced to the tracheal and bronchial complication so generally present in measles, which, extending partially into the substance of the lungs, gives a venous character to the blood. In scarlet fever, on the other hand, the lungs are unaffected, while there is intense arterial action. The eruption, therefore, partakes strongly of the character of arterial blood.

The development of eruption is often accompanied with a very moist state of the surface. This is the normal mode of development, and of course always to be desired. Few, if any cases, that begin thus, end unfavourably. The same thing is true of all exanthematic disorders. In a hot and dry state of the surface eruption is difficult, partial, and imperfect.

On the second day of eruption, (the fifth from the occurrence of rigours,) the eyelids often swell, from the extension of cutaneous action to the subjacent cellular tissue. Although I have never seen such a thing, I have yet heard of children blinded by measles during the space of four days. The progress of measly eruption, in all normal cases, is steadily from above downwards. On the second day of eruption the trunk and upper extremities are occupied. On the third it has extended to the lower extremities, by



which time it has nearly disappeared from the face. On the sixth day it has faded over the whole surface.

The sequelæ, or dregs, of measles, require from you as much study as the earlier periods of the complaint. I have described the normal progress of measles in perfectly healthy subjects. I am now to trace its effects on weakened and serofulous constitutions. Generally, in such habits, something occurs early to give cause of uneasiness. The initiatory fever has been severe. The eruption has been retarded twelve or twenty-four hours. It has receded and returned. Epistaxis, or an epileptic fit, or diarrhœa, has occurred to interrupt the normal course of the disease, and warn you of impending danger. Above all, in such constitutions the catarrhal symptoms do not subside on the outbreak of eruption. The cough continues. The child becomes restless. Careful observation detects dyspnœa. The stethoscope gives signs of impeded respiration. Instead of the febrile symptoms subsiding on the sixth day, and the child expressing its desire to get up and have its toys, the little sufferer continues to droop. Its hands are hot, its nights unquiet. It is thirsty, and the urine is scanty. Secondary fever has set in.

Pneumonic complication occurs both in the progress of the eruption, and during its decline. It is a slow, creeping, insidious form of inflammation, which too often throws the practitioner off his guard. No positive complaint is made. The child droops, and appears weak and exhausted. Imagining that the disorder has weakened his patient, the practitioner directs some mild tonic. Mean while, pneumonic engorgement (or pneumonia in its first stage) creeps on. The lungs become more and more congested, and at length solidified. A convulsive fit now takes place. Alarm is taken, but the mischief is irreparable. Dyspnœa increases. The child becomes drowsy, the feet cold. The pulse sinks.

Fluid effusion now takes place from the bronchial membrane. Another and another fit succeeds. Rattles are heard in the throat. The child dies!

*Ophthalmia.*—Ophthalmia of a very obstinate character frequently follows measles, and proves of a very difficult nature to treat. It is indicated by an inflammation of the conjunctiva, which is soon followed by a muco-purulent discharge, and which extends to the adjacent tissues, and assumes a chronic, and, in some cases, an ulcerative character.

*Phthisis, as an Effect of Measles.*—Phthisis, as an effect of measles, is one of the most common forms of the termination of the disease. It is produced by the miasmatic poison, so contaminating the blood as to cause tuberculous degeneration of its albuminous constituents, and a general softening of the mucous membrane, not only of the bronchi, but of the stomach, bowels, and even in some cases extending to nearly every portion of the mucous lining. The softening of the mucous membrane of the stomach and bowels most essentially impedes the healthy digestion, and contributes largely to the development of the disease.

When phthisis does occur as the effect of measles, the only distinguishing features that characterize this form of phthisis from most other forms are the rapid tendency of the disease towards its fatal results; and the more marked dyspeptic symptoms, together with a loss of function of the entire mucous tissue. Dropsy, scrofula, dyspepsia, uterine and other diseases, produced by the contaminating influence of measles, are developed as the result of the disorganizing influence of the morbid virus upon local organs and tissues, and are amenable to the same general treatment.

#### TREATMENT.

The treatment of measles, during the early stage of the disease, should be conducted by giving the patient a warm

bath, a mild emetic, and purge; after which the patient should be kept in a warm room, or at least where there is no danger of taking cold, and the following metastatic remedy given:—Take macrotin, ten grains; white sugar, one dram. Triturate, and add to a tumbler of water, and give one teaspoonful every hour or two, according to the character of the eruption. If the eruption is fully developed on the surface, but very little is required. On the other hand, if the eruption is easily repelled, or manifests a faded appearance, it should be given more freely. In cases where the eruption does not appear freely, and there are active catarrhal symptoms, one grain of quinine, and one-fourth or one-eighth of a grain of pulv. lobelia seed, or what is better, the oleo-resin of lobelia, should be given. If that does not allay the bronchial and pulmonic irritation, a few doses of the acetic syrup of sanguinaria, either alone or in combination with the quinine and lobelia, will answer the purpose. If the above treatment does not produce and maintain the eruption of the skin, from five to ten drops of the saturated tincture of *scrofularia marilandica*, in hot milk punch, or if there be inflammatory symptoms, give in water, and follow by a hot bath. In cases where the constitution has been debilitated by previous disease, or where there is a scrofulous or phthisical habit, iron, alumin, myrrine, and frazerin, in such forms and quantities as the peculiar case may require. During the convalescence the patient should drink freely of tonic tea four or five times a day. Order the skin to be kept active, the bowels open, and kidneys free, so as to prevent the accumulation of the rubeola poison in the fluids. In cases where the disease has assumed a chronic form, and the lungs, stomach, kidneys, or bowels, all the most vigorous resources to restore the excretories should be resorted to, and local difficulty should be combated with such remedies as will remove local inflammation, and restore the organ involved to its original condition. In

cases where there is evidence of an accumulation of rubeola poison in the blood, apocynin, given in half grain doses every two or three hours, has the effect to eliminate the virus from the system. A case which recently came under my charge, was that of a young lady of a strong phthisical habit. She was seized with measles, which ran a mild course, and subsided on the eighth day. Some two weeks afterwards she was attacked with cough and bronchial irritation, accompanied with great prostration, imperfect digestion, and rapid emaciation. Upon examining the sputa, it was found to contain an abundance of tuberculous granules. Dulness was manifested upon percussing the apex of the lung, and auscultation indicated rapid infiltration of tuberculous matter into the pulmonary tissue. The case was evidently one of phthisis, excited by the depressing influence of the rubeola virus in the system. I instituted the following treatment:—

R. Apocynin.....gr. v.  
 Ampelopsin.....gr. x.  
 Ferri Hypo-Phos.....gr. xx.  
 Mix. Ft. pulv. No. xx. Sig.

One every three hours, in one teaspoonful of Cod Liver Oil.

A warm friction bath was ordered every day, and a nutritious diet. Under this treatment the symptoms became somewhat mitigated, yet there remained an irritable cough, with copious expectoration, and great debility of the digestive organs. To remedy which, the following was ordered:—

R. Prunine.....gr. x.  
 Albuin.....gr. xx.  
 Sac. Alba.....3j.  
 Mix. Ft. pulv. No. xv. Sig.

One every three hours, in one teaspoonful of Cod Liver Oil.

In connexion with this treatment, I ordered an ounce of the tonic tea, and one dram of carb. ferri, to be added to one quart of the best Port wine; and one wine-glassful to be

taken before each meal. Under this treatment the patient rapidly recovered. When there is known to exist a strong phthisical or serofulous habit, during the early stage of measles, every effort should be made to maintain the eruption on the skin, and support the constitution until the disease is entirely eliminated from the system. In cases where measles has been followed by chronic ophthalmia, in connexion with the proper internal treatment, take pyrocin, ten grains; hydrastin, five grains; glycerine, one dram. Mix, form a paste, and apply to the inflamed portion of the eye, by means of a camel's hair brush, four or five times a day. During the treatment of all the forms of chronic measles, a nutritious diet, and a well-regulated hygienic treatment, will contribute much to the cure.

### INFLAMMATION.

There is, perhaps, no subject connected with pathology of so much interest as that of inflammation, nor is there a phenomenon of disease that has been more carefully studied; but it is only until recently that the entire subject has received a thorough explanation. The theories of the cause and nature of inflammation which have previously existed, based as they were mostly upon false hypotheses, exerted a most pernicious influence upon the theory and practice of medicine.

Van Helmont ascribed inflammation to a peculiar disturbance of the vital principle, thus forcing the blood into the capillaries in undue quantity, and that the irritability of the vital principle depended upon the pressure of gases in the blood. The mathematical school of physicians, and especially Pitcairn and Des Cartes, attributed inflammation to an *error loci*, or to obstructions which they supposed occurred in the passage of the blood from one portion of the body to the other. Boerhaave claimed that the cause of inflammation was that the blood became more viscid, causing a lentor in

the circulation, especially in the capillaries, and producing an engorgement of them, and that the increased action of the large vessels is for the purpose of overcoming the obstruction which exists in the small ones. Dr. Haller advanced the doctrine that the congestion of the blood in the capillaries was due to an irritability of the venous system, which was transmitted to the small vessels. In the seventeenth century Dr. Berlinghiere advanced a doctrine relative to inflammation quite opposite from that advanced by all the previous writers; which was, that instead of the cause of inflammation existing in the blood, or a constricted condition of the capillaries, the capillaries were in a state of relaxation and weakness; that as the result of this weakened condition of the vessels, the action of the heart and arteries becomes quickened, and a much larger quantity of blood than usual is impelled into the small vessels. Drs. Allen and Philip, who have written elaborately upon the subject, and who embraced the doctrine of relaxation and weakness of the vessels as the cause of inflammation, made many observations with the microscope for the purpose of confirming their notions. They, observing the feeble circulation of the *red* blood corpuscles, and their alternate stagnation, concluded that they depended upon the debility of the part inflamed. Drs. Gorter, Gaubius, and Glisson, considered that inflammation was the consequence of irritation, which increases the vital action of the vessels of the inflamed part, which by degrees extended to the entire organism. I might continue to narrate the theories of inflammation, as they are recorded in the history of medicine, but what I have given will suffice to show the reader some of the conflicting notions relative to the nature and causes of inflammation. It appears to me that the only systematic method of studying the phenomena is that adopted by Dr. Bennett, which is to observe the condition of the parts during the process of inflammatory action, together with the consecutive changes



which are produced by the morbid process. These changes Dr. Bennett has described as occurring during the process of inflammation; he describes them under the head of exudation, which term he regards as a much more appropriate one than inflammation, because, as he remarks, it explains the phenomena of the disease, as well as the symptoms.

There are three varieties of exudation, which, occurring as they do in one or other of the textures, occasion the great majority of those diseases we are called upon to treat. A knowledge of the manner in which these are produced, of the characters of each, of their specific differences and natural progress, constitutes the foundation of modern medicine. I propose, then, in the first place, to describe them to you generally, and then direct attention to the special peculiarities which they present in individual cases.

The term exudation has been introduced into pathology, not only to express the act of the liquor sanguinis passing through the walls of the blood-vessels, but also to denominate the coagulation of the fibrinous portion of the liquor sanguinis itself, upon the surface, or in the substance of any tissue or organ of the body. The use of this term removes a difficulty which morbid anatomists have long experienced;\* and hence it has of late years been extensively

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\* Of inflammation, Andral says:—"Created in the infancy of science, this expression, altogether metaphorical, was destined to represent a morbid state, in which the parts appeared to burn, to be inflamed, etc. Received into general language without any precise idea having ever been attached to it, in the triple relation of symptoms which announce it, of the lesions which characterize it, and of its intimate nature, the expression inflammation has become so very vague, its interpretation is so very arbitrary, that it has really lost its value; it is like an old coin without an impression, which ought to be removed from circulation, as it only causes error and confusion." On the other hand, exudation of the liquor sanguinis is a demonstrative fact, and gives rise to a definite idea. Hence, for all scientific and practical purposes, the expression "exudation" may be substituted for that of inflammation.

used to indicate various kinds of morbid deposits. Thus it has been applied to all of those morbid processes, hitherto termed inflammatory, tubercular, and cancerous; it may be associated with every form of morbid growth; it often gives rise to concretions, and frequently constitutes the soil in which grow those parasitic vegetations, or cryptogamic plants of a low type, which communicate essential characters to certain diseases.

Under the head of exudation, indeed, considered as a morbid process, is comprised the greater part of organic, as distinguished from functional disease; of lesions of nutrition, as separated from lesions of innervation.

#### PRODUCTION OF EXUDATION.

Exudation is, in every case, preceded by a series of changes which have taken place in the capillary vessels, and in the blood contained in them. These changes, as we are enabled to follow them in the transparent parts of animals under the microscope, are seen to occur in the following order:—1st. The capillary vessels are narrowed, and the blood flows through them with greater rapidity. 2d. The same vessels become enlarged, and the current of blood is slower, although even. 3d. The flow of blood becomes irregular. 4th. All motion of the blood ceases, and the vessel appears fully distended. 5th, and lastly, the liquor sanguinis is exuded through the walls of the vessel; and sometimes there is extravasation of blood corpuscles, owing to rupture of the capillaries.

The first step in the process, namely, narrowing of the capillaries, is readily demonstrated on the application of acetic acid to the web of the frog's foot. If the acid be weak, the capillary contraction occurs more slowly and gradually. If it be very concentrated, the phenomenon is not observed, or it passes so quickly into complete stoppage of blood, as to be imperceptible. Although we cannot see

these changes in man under the microscope, certain facts indicate that the same phenomena occur. The operations of the mind, for instance, as fear and fright, and the application of cold, produce paleness of the skin, an effect which can only arise from contraction of the capillaries, and a diminution of the quantity of blood they contain. In the majority of instances, also, this paleness is succeeded by increased redness, the same result as follows from direct experiment on the web of the frog's foot, and which constitutes the second step of the process. In other cases, the redness may arise primarily from certain mental emotions, or from the application of heat; and in both instances depends on the enlargement of the capillaries, and the greater quantity of blood which is thus admitted into them.\*

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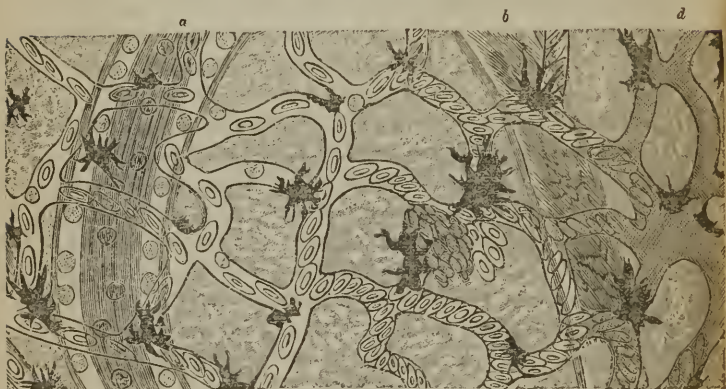
\* It has been asserted, that instead of contraction of the capillaries, the first changes observable are enlargement, with increased flow of blood. To determine positively the question of contraction or dilatation, I have recently made a series of careful observations on the web of a frog's foot. Having fixed the animal in such a way that it could not move, I carefully measured with Oberheuser's eye micrometer the diameter of various vessels before, during, and after the application of stimuli. The results were, that immediately as hot water was applied, a vessel that measured thirteen spaces of the eye micrometer contracted to ten; another that measured ten contracted to seven; a third, that measured seven, contracted to five; a fourth, which was a capillary carrying blood-corpuscles in single file, and measured five, was contracted to four; and another one, of the smaller size, which measured four, was contracted to three. With regard to the ultimate capillaries, it was frequently observed that if filled with corpuscles, they contracted little; but if empty, the contraction took place from four to two, so that no more corpuscles entered them, and they appeared obliterated. This was especially seen after the addition of acetic acid. It was also observed that minute vessels that contracted from four to three, afterwards became dilated to six before congestion and stagnation occurred. The smaller veins were seen to contract as much as the arteries of the same size.

The variation in the size of the capillaries, and of the amount of blood in them, is conjoined with changes in the movement of that fluid. Whilst the vessels are contracted, the blood may be seen to flow with increased velocity. After a time the blood flows more and more slowly, without, however, the vessel being obstructed; it then oscillates, that is, moves forwards and backwards, or makes a pause, which is evidently synchronous with the ventricular diastole of the heart. At length the vessel appears quite distended with yellow or coloured corpuscles, and all movement ceases.

Again, these changes in the movement of the blood induce variations in the relation which the blood corpuscles bear to each other, and to the walls of the vessel. In the natural circulation of the frog's foot, the yellow corpuscles may be seen rolling forward in the centre of the tube, a clear space being left on each side, which is filled only with liquor sanguinis and a few lymph corpuscles. There are evidently two currents, one at the centre, which is very rapid, and one at the sides, (in the lymph spaces, as they are called,) much slower. The coloured corpuscles are hurried forward in the centre of the vessel, occasionally mixed with some lymph corpuscles. These latter, however, may frequently be seen clinging to the sides of the vessel, or slowly proceeding a short distance along it in the lymph space, and then again stopping. Occasionally the lymph corpuscles get into the central torrent, whence they are carried off with great velocity, and accompany the yellow corpuscles. It has been said that these corpuscles augment in number, accumulate in the lymph spaces, and obstruct the flow of blood. In young frogs their number is often very great; but then they constitute a normal part of the blood, and in no way impede the circulation. In old frogs, on the other hand, all these, and subsequent changes, may be observed, without the presence of colourless corpuscles. When the capillaries enlarge, however, the central coloured column in the smaller

vessels may be seen to enlarge also, and gradually approach the sides of the tube, thus encroaching on the lymph spaces. The slower the motion of the blood, the more the lymph spaces are encroached on, until at length the coloured corpuseles come in contact with the sides of the vessel, and are compressed and changed in form. The vessel is at length completely distended with coloured corpuseles, the original form of which can be no longer discovered, so that the tube appears to be filled with a homogeneous, deep crimson fluid. This is congestion. Fig. 11, an exact copy of the portion of

FIG. 11.



the web in the foot of a young frog, after a drop of strong alcohol has been placed upon it. The view exhibits a deep-seated artery and vein, somewhat out of focus; the intermediate or capillary plexus running over them, and pigment cells of various sizes scattered over the whole. On the left of the figure, the circulation is still active and natural. About the middle it is more slow, the column of blood is oscillating, and the corpuseles crowded together. On the right, congestion, followed by exudation, has taken place. *a*, a deep-seated vein, partially out of focus. The current

of blood is of a deeper colour, and not so rapid as that in the artery. It is running in the opposite direction. The lymph space on each side, filled with slightly yellowish blood plasma, is very apparent, containing a number of colourless corpuscles, clinging to, or slowly moving along, the sides of the vessel. *b*, a deep-seated artery, out of focus, the rapid current of blood allowing nothing to be perceived but a reddish, yellow broad streak, with lighter spaces at the sides. Opposite *c*, laceration of the capillary vessel has produced an extravasation of blood, which resembles a brownish-red spot. At *d*, congestion has occurred, and the blood corpuscles are apparently merged into one semi-transparent, reddish mass, entirely filling the vessels. The spaces of the web, between the capillaries, are rendered thicker and less transparent, partly by the action of the alcohol, partly by the exudation. This latter entirely fills up the spaces, or only coats the vessel. If the morbid process continue, the vessel may burst, causing hemorrhage, or the liquor sanguinis may transude through its walls, without rupture, into the surrounding textures. This last is exudation.

#### THEORY OF EXUDATION.

It is of the utmost importance in pathological inquiries, to separate facts from theories. Our facts may be correct, although the conclusions derived from them are wrong. This proposition, however generally admitted, is seldom adhered to in practice; for in medical writings and statements, we frequently find fact and hypothesis so mingled together, that it often requires considerable critical and analytical power to separate the one from the other. We are, however, in all cases insensibly led to theorize; that is, to attempt an explanation of the phenomena observed, in order that we may derive from them some general principle for our guidance. Such speculation is always legitimate, so long as we consider opinions to be mere generaliza-



tions of known facts, and are ready to abandon them the moment other facts point them out to be erroneous. The phenomena of exudation, previously described, may easily be demonstrated—they contain the *facts*. Let us now examine how they have been attempted to be explained. In other words, What is *theory*?

1. The contraction and dilatation of the capillaries are explicable, by supposing them to be endowed with a power of contractility analogous to that existing in non-voluntary muscles. John Hunter thought they were muscles, from the result of his observations and experiments; and they may be known by the histologist to consist of a delicate membrane, in which permanent nuclei are imbedded. Mr. Lister has recently shown that much of the contractility is dependent on fusiform cells, which have the property of shortening themselves, and which run transversely round the vessels. In structure, then, they possess elements closely resembling the muscular fibres of the intestine; and we know that, like them, they may be contracted or dilated by emotions of the mind, (that is, through the nerves,) or by local applications, that is, directly. The narrowing of these tubes, therefore, may be considered, as Cullen thought it was, analogous to spasm, or to muscular paralysis. The recent observations of Cl. Bernard and others as to the effects produced by dividing the large nervous trunk of the sympathetic in the neck, have singularly confirmed this theory.

2. The rapid and slow movement of the blood is explicable on the hydraulic principle, that when a certain quantity of fluid is driven forward with a certain force through a previous tube, and the tube is narrowed or widened, while the propelling force remains the same, the fluid must necessarily flow quicker in the first case, and slower in the second. It has been supposed, from the throbbing of large vessels leading to congested parts, that they pump a larger

quantity of blood than usual into them. This was called "determination of blood" by the older pathologists, and is now known not to be a cause, but a result, of the changes going on in the capillary vessels and tissues of the affected part. The oscillatory movement, seen later in the transparent parts of the small animals, has not been observed in man, and probably depends, in the former, on a weakened power of the heart.

3. It is the stoppage of the blood, and exudation of the liquor sanguinis, however, which it is most difficult to explain; for why, so long as there is no mechanical obstruction, (and during this process none has ever been seen,) should the circulation through the capillaries of a part cease? It has been endeavoured, indeed, of late years, to account for this stoppage by referring it to a mechanical obstruction, which is supposed to result from the formation of colourless corpuscles, which cling in large numbers to the sides of the capillaries, and so cause interruption of the stream. But this hypothesis is negatived by the following facts:—1st. In young frogs the vessels may be seen to be crowded with colourless corpuscles, while the circulation is in no way affected. 2d. In old frogs, oscillation and gradual stoppage of the stream may be seen, without any colourless corpuscles being present. 3d. The colourless corpuscles, as shown by Remak, are increased, after large venesections, in the horse, without ever causing active congestion.\* And, 4th, in leucocythemia all the vessels are crowded with colourless corpuscles, and yet no active congestion in these vessels, nor exudation of any kind, takes place. (See Leucocythemia.)

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\* Diagnostische and Pathognetische Untersuchungen, &c., 1845. He also found that in man the colourless corpuscles of the blood were few in number during inflammations, and were augmented during successive bleedings, so that he concluded the *fewer* there are of these, the higher is the degree of inflammation.

We cannot ascribe the stoppage of the circulation in the capillaries to venous obstruction, or to mechanical pressure of any kind, because all observation proves that such causes, while they induce effusion of serum, never occasion exudation of liquor sanguinis. Neither can we suppose it to depend on endosmose, nor on a *vis a tergo*, as such physical causes cannot be shown to apply in all cases. We are compelled, therefore, to attribute the vital force producing these changes, not to anything residing in the blood, or in the vessels, but to the tissues which lie outside the vessels. That these do possess a power, attractive and selective, whereby matters are drawn from the blood to carry on nutrition and secretion, is now generally admitted in physiology. A modification of this power, whereby the attractive property is augmented, and the selective one diminished, at least offers us an explanation consistent with all known facts, and seems to be the only active agency to which we can ascribe the approach of the coloured particles to the capillary walls, and the passage through them of the exudation.

When the liquor sanguinis is exuded, it generally coagulates, and constitutes a foreign body in the texture of the parts affected; and then it becomes the object of nature, either to remove it from the system, or so to modify it that its presence may be rendered conducive to the wants of the economy. In order to accomplish this, two kinds of changes take place in it:—1st, the exudation serves as a blastema, in which new vital structures originate and are developed; 2d, it exhibits no power of becoming organized, and the exuded matters, together with the textures involved in them, die. In the first case, corpuseles spring up in the exudation, which differ in form, size, constitution, and power of farther development, and give rise to those various appearances and changes, which, in some cases, have been denominated the results of inflammation, in others, various kinds of deposits. In the second case, death of the exudation takes place slowly, constituting ulceration, or rapidly producing gangrene.

## VITAL TRANSFORMATION OF THE EXUDATION.

We find the peculiar constitution of the blood, or the general vital power of the organism, exercises a very powerful influence on the development of the exudation. This has been long recognised by pathologists in certain conditions, denominated respectively diathesis, dyscrasia, or cachexia. I propose, at present, to direct your attention to some of the facts connected with exudation as it occurs in the body during health, as well as when connected with cancerous and scrofulous constitutions. I shall call the former *simple* exudation, to distinguish it from what may be denominated *cancerous* and *tubercular* exudation.

*Simple Exudation.*—Simple exudation presents four principal forms:—1st, as it occurs on serous membranes, where it exhibits a finely fibrous structure, and has a strong tendency to be developed into molecular fibres; 2d, as it occurs on mucous membranes, or in areolar tissue, where it is generally converted into pus corpuscles; 3d, when it occurs in dense, parenchymatous organs, such as the brain, where it assumes a granular form, and is associated with numerous compound granular corpuscles; 4th, as it is poured out after wounds or injuries, and occurs on granulating sores. In this last case the superficial portion is transformed into pus-corpuscles, while the deeper seated is converted, by means of nuclei and cells, into nucleus and cell fibres, which ultimately form a cicatrix.

1. On examining the minute structure of the exudation on a serous surface when recently formed, and when it presents a gelatinous, semi-transparent appearance, it will be found to be made of minute filaments mingled with corpuscles. (Fig. 12, molecular fibres and plastic corpuscles, in simple exudation on a serous surface. The latter, after the addition of acetic acid.) The filaments are not the result of the development of either a nucleus or a cell, but

are formed by the simple precipitation of molecules, which arrange themselves in a linear manner, in the same way as

FIG. 12.



they may be seen to form in the buffy coat of the blood. As the exudation becomes firm, the filaments appear more distinct and consolidated, varying from one-fourteen-thousandth to one-ten-thousandth of an inch in diameter. Bundles, or different layers of them, often cross each other; and as the lymph becomes older, they assume more and more the character of those in dense fibrous tissue. The corpuscles, when newly formed, are delicate and transparent, but in a short time become more distinct, and are then seen to be composed of a distinct cell-wall, enclosing from three to eight granules. They vary in size from one-one-thousand-three-hundredth to one-ten-thousandth, and the enclosed granules from one-fourteen-thousandth to one-ten-thousandth of an inch in diameter. On the addition of water and acetic acid, the corpuscles undergo no change, although sometimes the latter re-agent causes the cell-wall to contract and thicken; and at others, to be somewhat more transparent. In 1842, I separated these bodies from pus cells, and called them *plastic corpuscles*, from the frequency of their occurrence in plastic lymph. Lebert, in 1845, confirmed my description, and called them *pyoid*, from their resemblance to pus.

These corpuscles, after a time, melt away among the fibres; but several of them remain, constituting, as shown by Dr. Drummond, permanent nuclei. After a time blood-vessels grow in the exuded lymph, (see Vascular Growths,) the surface of which becomes villous. Into the villi loops of vessels penetrate, and by these the fluid, contained in the interior of shut sacs, is absorbed. The fluid thus gradually diminishes, and, when the villous surfaces are brought into contact, they unite, and ultimately form the dense chro-

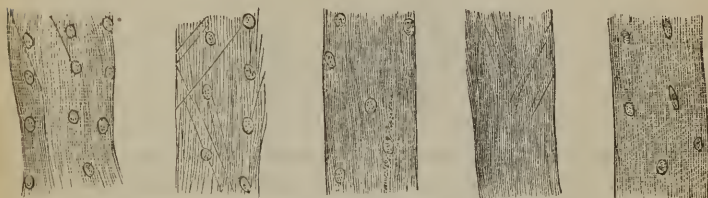
FIG. 13.

FIG. 14.

FIG. 15.

FIG. 16.

FIG. 17.



nic adhesions so common between serous membranes. (Fig. 13, a portion of recent lymph from the pleura. Fig. 14, another portion of the same, farther developed. Fig. 15, portion of firm pleural adhesion. Fig 16, another portion of the same, farther developed. Fig. 17, the last acted on by acetic acid.)

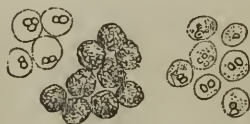
2. Exudation poured out on a mucous membrane, sometimes presents a fibrous mass, as in cases of croup and diphtheritis; but more generally it passes into an opaque, unctuous, straw-coloured fluid, long known under the name of pus. When poured into the meshes of areolar tissue, and occasionally into the substance of the brain, the same transformation occurs, and then forms an abscess. On examining the minute structure of pus, it is seen to be composed of numerous corpuscles floating in a clear fluid. These corpuscles are perfectly globular in form, and vary in size from the one-two-thousandth to the one-one-thousand-two-hundredth of an inch in diameter. Their surface is



finely granular. They have a regular, well-defined edge, and roll freely in the liquor puris upon each other. On the addition of water, they become much increased in size, and more transparent, their finely granular surface disappearing. Weak acetic acid partially, and the strong acid completely, dissolves the cell-wall, and brings into view the one included body, generally composed of two or three granules close together, and rarely four or five, each with a central shadowed spot. These are usually about the one-

FIG. 18.

FIG. 19.



six-thousandth of an inch in diameter. (Fig. 18, pus cells. Four cells have been acted on by acetic acid. Fig. 19, pus cells containing fatty molecules, after adding acetic acid.) In some cases the pus corpuscles now described are surrounded by an albuminous layer closely resembling a delicate cell-wall, which I first described in 1847. It is about the one-ten-thousandth or one-eight-hundredth of an inch in diameter, and is highly elastic, assuming different shapes, according to the degree and direction of the pressure to which it is subjected. Water and acetic acid cause it at once to dissolve, whilst the included pus corpuscles exhibit the usual body composed of two or three granules.

In what is called serofulous pus, the corpuscles, instead

FIG. 20.

FIG. 21.



of being round and rolling on each other, are misshapen and irregular, and, on the addition of acetic acid, the gra-

nular nuclei are found to be ill-formed, or absent. (Fig. 20, serofulous pus cells, after the addition of acetic acid. Fig. 21, the same. In both specimens the nuclei are irregular, or absent.)

Pus cells, if not evacuated externally, ultimately dissolve, their walls disappear, the included nuclei and granules separate, and are converted into a fluid. This passes into the blood, increases for a time its effete constituents, but is at length excreted by the emunctories. Mean while the original abscess, or collection of matter, is said to be *resolved*.

3. In parenchymatous organs, the exudation insinuates itself among the elementary tissues of which they are composed, so that, when it coagulates, those are imprisoned in a solid plasma, like stones in the mortar of a rough-cast wall; thus constituting a firm mass, and giving increased density to certain organs. This is well observed in the lung; where, however, a mucous surface extensively prevails, and where the exudation is commonly transformed into pus. In the brain, spinal cord, and placenta, we find the exudation deposited in the form of minute molecules and granules, which are frequently seen coating the vessel

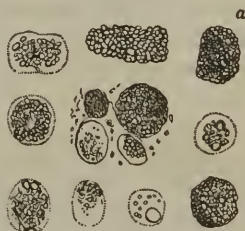
FIG. 22.



externally, and filling up the intervascular spaces. (Fig. 22, granular exudation and granular masses, from cerebral

softening.) The granules vary in size from the one-twelve-thousandth to the one-six-thousandth of an inch in diameter. They always contain among them round, transparent globules, varying in size from the one-five-thousandth to the one-three-thousandth of an inch in diameter. These are the nuclei of round or oval cells, which may frequently be observed in various stages of development. When fully formed, the cells vary greatly in size, for the most part measuring from the one-thousandth to the one-hundred-and-seventy-fifth of an inch in diameter. They sometimes contain a few oil granules only, at others they are so completely filled with them as to assume a brownish-black appearance. Water and acetic acid cause no change in them; although the latter re-agent, on some occasions, renders the cell-walls more transparent. They are readily soluble in ether, and break down into a molecular mass on the addition of potash and ammonia. These are granule cells. (Fig. 23, granular cells and masses from cerebral softening.)

FIG. 23.



Masses of these granules may be seen floating about, of irregular shape, without any cell-wall. They are produced either by the solution of the cell-wall in which they are contained, or from the separation, or peeling off of such masses from the external wall of the vessels, and form granular masses. Pressure causes these granules to coalesce, or the air to be forced through the cell-wall; occasionally, also, the cell-wall is ruptured.

The granules, masses, and cells just described, are found

in the colostrum secreted by the mammary glands; in the exudative softening of parenchymatous organs; on the surface of granulations and pyogenic membranes; in the pus of chronic abscesses, combined with cancerous, tubercular, and all other forms of exudation; in the tubes of the kidney, when affected with Bright's disease; and in the contents of encysted tumours. In fact, there is no form of cell growth, whether healthy or morbid, that may not, under certain conditions, accumulate oil or fatty granules in its interior, become a compound granular corpuscle, and thus be rendered abortive. The granule cells in an exudation, however, are the results of a vital transformation of that exudation, and not of a mere fatty degeneration of the vessels, as some have supposed. In some instances I have seen them in all stages of development coating the blood-vessels, as in fig. 24. (Fig. 24, two vessels coated with exu-

FIG. 24.

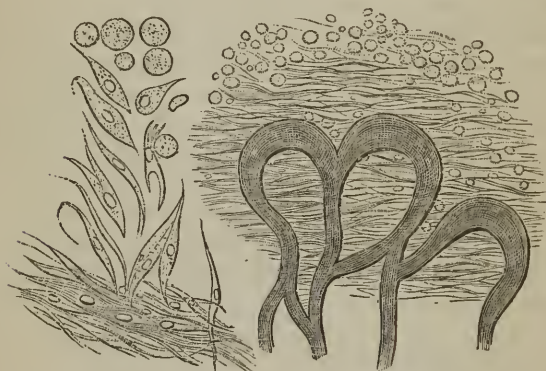


dation from softening of the spinal cord. Granular cells may be seen forming in it.) That softening from the formation of granules and granular cells may occasionally disappear, and the new structures be absorbed, is rendered probable by the history of several well-recorded cases; but the changes thereby produced, especially in nervous textures, have not hitherto been made the subject of special investigation.

4. If a recently-formed granulation on the surface of a

healing sore be examined, numerous cells will be observed of various shapes, and in different stages of development. Some are round, others caudate, spindle-shaped, elongated, or splitting into fibres, as originally described by Schwann. (Fig. 25, vertical section of a granulating sore. Exter-

FIG. 25.



nally, pus corpuscles, deeper fibre cells in various stages of development into fibre. The looped blood-vessels are seen enlarged at their extremities, *magnified one hundred diameters linear*. On the left, the cells are *magnified two hundred and fifty diameters linear*.) In many cases there may be seen a number of free nuclei imbedded in a slightly fibrous blastema, elongating at both ends, becoming fusiform, and splitting up the surrounding exudation, as described by Henle. Not unfrequently the nuclei may be seen developing themselves into elastic fibres, in the same exudation which contains cells that are passing into white fibres. Indeed, the process of cicatrization in its various stages, and in different tissues, offers the best means of studying the manner in which nucleus and cell fibres are respectively formed. As these fibres are developed in the deeper layers of the exudation, a villous, vascular basis is

formed, and the superficial pus corpuseles, after having served to protect the more prominent growths, are thrown off in the form of discharge. When the fibrous structure becomes more consistent and dense, the amount of pus diminishes, and a greater tendency is manifested by the exudation to pass into permanent tissue. At length pus ceases to be developed; the whole remaining exudation is transformed into fibres; a new surface is produced, which, after a time, contracts and forms the permanent cicatrix."

From the foregoing remarks of Dr. Bennett it will be perceived that the liquor sanguinis escapes from the capillaries during the process of inflammation, and consolidates on the outside of the vessels, constituting more or less solid exudation. The serum which escapes during the exosmosis is principally absorbed, although portions of it remain and constitute a blastema, which assists in the organization of the exudation. The character of this organization depends upon the locality of the inflammatory process; as, for instance, exudation occurring on the mucous surface has a strong tendency to be converted into pus cells. The only exception to this rule is in pseudo-membranous croup and scarlatina diphtheritis. When exudation occurs on a serous surface, as in pleuritis, peritonitis, &c., the tendency of the exudation is to become organized and converted into fibrous tissues, constituting various forms of adhesive inflammation, while that which occurs in the solid parenchyma usually assumes a granular form. The general exceptions to the rule of the transformation of these exudations, are in cases of cancerous and tuberculous affections; in either of which the exudation maintains its peculiar characteristics. Of the cause of exudation Dr. Bennett remarks:—

"Of the ultimate cause producing this difference in the formative power of the exudation we are ignorant; but legitimate reasoning leads us to the conclusion, that these



changes and effects depend, not upon the vascular system, which is the mere apparatus for the production of exudation; nor upon the nervous system, which conducts impressions to or from this apparatus; and not on the texture, which is the seat of the exudation, as that varies whilst the cancerous or tubercular formation is the same—but upon the inherent composition, or constitution of the exudation itself. On this point most pathologists are agreed, and hence the supposed existence of various kinds of dyscrasiæ, which originate in the blood, and as it is imagined, explain the different results produced. And here pathologists pause,—having traced the disease back to the blood, they are content; but they have not sufficiently taken into consideration, that the blood itself is dependent for its constitution on the results of the primary digestion in the alimentary canal on the one hand, and the secondary digestion in the tissues on the other. Yet it must be evident to every physiologist, that if it be the constitution of the blood which determines the constitution of the exudation, the causes which produce the latter must be sought in those circumstances which operate on the composition of the former fluid.

“ Numerous facts render it probable, that while the blood is normal in simple exudation, it contains an excess of nutritive materials in cancerous, and a deficiency of them in tubercular exudation; but these are points which can only be established after examining instances of such exudations in detail. But it must not be forgotten, however, that as the blood is continually undergoing changes, and is receiving and giving off new matters, it can scarcely remain the same for many hours together. An exudation at one time may be very different from what it was at another; abounding in elements at one period which do not exist in it at the next. Hence, therefore, it may often happen, that a concurrence of circumstances is necessary to occasion a certain result. A cancer once formed, may remain local

until such a concurrence of events arises, comprising, first, the phenomena leading to and producing an exudation; secondly, the occurrence of this exudation in some other tissue or organ sufficiently predisposed for the purpose; and thirdly, a peculiar constitution of the blood. Hence the histologist continually finds many varieties of intermediate formations between the three leading kinds of exudation; and even when the constitution is thoroughly cancerous or tubercular, simple exudations may be poured into tissues as the result of recent wounds or injuries. But, whilst a recent cancerous or a tubercular exudation may be found to accompany, or alternate with, a simple exudation, the two former are seldom met with together—a circumstance which still farther points out the wide difference between the constitutional causes producing them. The termination of all kinds of exudation may be the same, but each has its peculiarities. We have noticed the tendencies of simple exudation to be transformed into pus or fibres, according to its seat. In the one case the pus cells break down, and are re-absorbed in a disintegrated and fluid condition into the blood; in the other, permanent fibrous tissue is produced, constituting chronic adhesions, cicatrices, &c. The cells of a cancerous growth may also degenerate or decay, but this rarely takes place throughout the whole structure. But it is not uncommon to find in certain encephalomatous tumours, yellow matter, either in masses, or reticulated through its substance.—(Cancer Reticulare of Müller.) This is generally owing to fatty degeneration of the cancer cells. The fibrous structure of cancer may also increase, so as occasionally to produce cicatrization. Tubercle possesses no such fibrous stroma, but is infiltrated among the elements of various organs, the vascularity of which it tends to destroy. This, indeed, is the reason why a cancerous tumour increases by growth, which a tubercle cannot be said to do; the former is vascular, the latter is not: in the one, cells are formed which have the power of re-development; in the other, no re-pro-

ductive cells are produced. In cancer, the morbid matter, whatever it be, circulating in the blood, is concentrated or attracted to the cancerous part; and even should no such matter be present, the healthy blood is made subservient to the purpose of nourishing a foreign growth. In tubercle, successive fresh exudations only occur, which, by their accumulation, augment the volume or amount of the morbid product. All these forms of exudation may be rendered abortive, the animal matter of them being broken down and absorbed, while the mineral matter remains, constituting a cretaceous or calcareous concretion. This is not unfrequently seen as the result of simple exudation; it rarely happens in cancerous, but is very common in tubercular exudations.

“During the disintegration of simple, cancerous, and tubercular exudations, the animal matter broken down is again rendered fluid, re-passes into the blood, and then constitutes that excess of fibrine detected by chemists. The quantity of this will, of course, vary according to the amount of the exudation and the activity of the disintegrating process. In the blood this effete matter undergoes a series of chemical changes, preparatory to its excretion by the different emunctories, especially by the kidneys, in the form of various sediments. The resolution of simple exudation is generally accompanied by the presence of urinary sediments, whose nature indicates in what way the exudation, after it has passed through the phases of development described, is at length discharged from the body. In the same manner the amount of these sediments frequently points out the extent of absorption going on in cancerous and tubercular exudations.

“Another theory has been advanced regarding the various products of exudation as we have described them, viz., that instead of being new formations in an exuded blood plasma, they are only modifications of pre-existing texture. According to this view, pus cells are only altered epithelial ones, cancer cells are an increased development, and tubercle corpuscles are a degeneration, or “necrosis,” of glands or other

cells. The fallacy of this theory, though it has many facts which seem to give it support, is easily demonstrated. For instance, pus cells may occur in tissues where there are no epithelial cells, as among muscles; and cancer, pus, and tubercle, are all found in the white substance of the brain, where no cells have been demonstrated to exist, capable of increasing on the one hand, or degenerating on the other."

#### MORTIFICATION, OR DEATH OF THE EXUDATION.

During an active inflammatory process, it is not uncommon for a large amount of liquor sanguinis to escape from the diseased capillaries; and in case they become ruptured, blood corpuscles will be found mixed with the exuded product, in which case a complete obstruction may occur to the circulation, and the pressure so paralyze the nerves as to prevent the formation of new structure, or the ordinary changes in the exudation. In which event the corpuscles break down and become disintegrated, their hæmatosine dissolves and colours the serum, forming a rusty-coloured or blackish mass, producing what is known as moist gangrene, or mortification. During this decomposition an acid matter is formed, which acts upon the surrounding tissue, producing disorganization, and evolving carburetted hydrogen gas. (See fig.

FIG. 26.



26, which represents mortification following compound fracture.—*Liston*.) As the tissues become broken down and dissolved in this acid product, they are discharged in the form of ichorous pus. In mortification the vitality of the

exudation is lost, and, instead of passing into organization, it becomes subject to the chemical laws of dead matter. Senile, or dry mortification, may occur as the result of obstruction of the blood-vessels, of debility, or some peculiar crisis of the blood.

#### ULCERATION.

Ulceration, although somewhat similar to mortification, is of a more chronic character, and does not result in the entire death of the exudation; as, while portions of the exuded product still possess its cell-formative power, other portions become disintegrated and converted into granular matter, mingled with the serum, constituting that form of pus known as unhealthy, or ichorous. This form of ulceration almost always occurs in vitiated constitutions. In recent sores and ulcerated patches connected with a healthy constitution, the regular pus corpuscles will form a plastic-like substance, which covers and protects the fresh granules during their process of development and organization.

Of the symptoms of inflammation I have already given an account in another portion of the work.

#### TREATMENT OF INFLAMMATION.

In addition to the treatment I have already given, I would state that the various applications of the cold and hot packs constitute a valuable auxiliary in the treatment of active exudation. Where the disease is connected with a vitiated constitution, the system should not only be supported by means of alumin, hydrastin, iron, and other active tonics, but the part inflamed should be stimulated by means of the alcoholic tinctures of hydrastis, baptisin, &c. A pernicious error that exists relative to the treatment of local inflammation in serofulous and tuberculous constitutions, is in the application of weakening and debilitating poultices, instead of applying supporting and strengthening remedies, as is demanded by the nature and character of the disease. For farther consideration of the treatment, the reader is referred to special inflammatory diseases.

# AN EPITOME

OF THE

## AMERICAN ECLECTIC PRACTICE OF MEDICINE.

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### EPHEMERA.

EPHEMERA is a fever which lasts but one day. Its symptoms are chilliness and anorexia or indifference to food, followed by a hot skin, flushed face, with hard and frequent pulse. In the course of from sixteen to twenty-four hours, these symptoms yield to a gentle perspiration, which lasts one or two hours, leaving no trace of fever save slight debility. It is mostly confined to children, and may be considered the simplest form of fever, requiring only mild treatment.

### TREATMENT.

Give a warm bath by immersing the patient in warm water, or by sponging the surface frequently in warm saleratus water. If the head is hot, apply a towel wrung out of cold water, and change often.

If the fever is persistent, add ten drops of the Tinet. of Aconite to ten tablespoonfuls of pure water, and give one teaspoonful every half hour until the fever subsides. If the bowels are confined, give a warm water injection. Warm or cold packs may be resorted to in case of local congestion.



## INTERMITTENT FEVER, OR AGUE.

## SYMPTOMS.

Febrile paroxysms occurring at regular intervals of longer or shorter duration. But mostly recurring every twenty-four, forty-eight, or seventy-two hours. The twenty-four hour type is the Quotidian, the forty-eight hour the Tertian, and the seventy-two hour the Quartan. The interval between the paroxysms is called the Apyrexia. The period from the commencement of one paroxysm to the end of the next is called the revolution. Either type of this fever may appear in a double form. Thus, Quotidian frequently occurs twice a day, producing double Quotidian. The Tertian and Quartan, when occurring in a double form, produce a double paroxysm every second and third day. The double daily paroxysms have sometimes been ascribed to the double Tertian. And their occurrence at different hours on alternate days, together with the difference in the severity of the paroxysms, have been described by Prof. Jones as diagnostic symptoms of double Tertian. But having frequently observed the Tertian type manifesting itself in double paroxysms every other day, with a perfect immunity from the disease on the Apyrexial day, I am led to infer that the double daily paroxysm, ascribed to the double Tertian, is only one modification of double Quotidian. This fever is generally preceded by languor, pain in the bones, irregular bowels, and alternate changes in the urine, which characterize the type of the approaching disease by occurring at the same regular intervals, and lasting the same length of time. These changes in the urine are from a light limpid to a dark yellow appearance. The tongue becomes covered with a white thin coat, and from one to two hours before the chill, the spleen yields a peculiar elastic resonance,

and becomes considerably increased in size. About this time distinct rigors or chills are felt, passing up the back and down the legs; the teeth chatter, the nails become purple, the skin has the appearance of goose-flesh (*cutis anserina*) with Horripilations. If the chill lasts for any considerable length of time, there will be oppressed breathing, with precordial pressure.

In the course of from fifteen to thirty minutes these symptoms gradually subside, and at first a mild fever succeeds, which continues to increase until the skin becomes dry and hot. The pulse increases in fulness and frequency, beating from 100 to 120 per minute. There is violent throbbing of the carotid artery, severe pain in the head, with dryness of the secretions, producing thirst, and scanty and high-colored urine. There is also much restlessness and uneasiness throughout the entire Pyrexia.

These symptoms, modified in different individuals and localities, last from one to six hours, when they become mild, and terminate in the sweating stage. The skin now becomes covered with a profuse perspiration, the pulse becomes soft and natural, the respiration easy, and the patient feels as if almost restored to a state of health.

#### TREATMENT.

On the approach of the cold stage, the feet should be placed in warm water, and the patient caused to drink freely of some warm tea. After which he should be placed in bed, with covering of hot flannel, and jugs of hot water to the feet. As soon as the fever appears, the extra covering should be removed, and from one to ten drops of the Tinct. of *Veratrum Viride* should be given every half hour until the fever subsides. Cold packs should be applied to the head, and hot sinapisms to the feet. The body should be frequently sponged in warm broke water, to which may be added a little whiskey.

During the Apyrexia, the following compound may be given for the purpose of interrupting and preventing the return of the paroxysm :

R Eupatorin ..... gr. xx.  
 Cornine..... gr. xx.  
 Citrate of Iron ..... gr. x.

Mix, divide into six powders, and give one every three hours, or oftener if it is necessary, in order to have them all taken before the return of the paroxysms.

If the paroxysms return, the same treatment may be pursued as at first, during the cold and hot stages.

After which, give the following compound :

R Viburine..... gr. x.  
 Rhusine ..... gr. x.  
 Salicin..... gr. xxx.

Mix, divide into six powders, and give one every three hours, or oftener as the case may require.

Or,

R Bebeerine ..... gr. xx.  
 Quinine..... gr. x.  
 Phosphate of Iron..... gr. x.

Mix, divide into six powders, and give as above.

Or,

R Quinine..... gr. xx.  
 Bitartrate of Potassa..... gr. xxx.

Mix, divide into six powders, and give one every three hours.

Or,

R Chinoidin..... gr. xx.  
 Capsicum..... gr. xx.  
 Santonine..... gr. xx.

Make ten pills, and give one every two hours.

Or,

R Syrup of Bone Set..... Oss.

Chloride of Sodium (Common Salt)..... ʒj.

Mix, dose 1 oz. every hour during the revolution.

ʒj of pulverized Sassafras Bark, taken at intervals of one or two hours during the revolution where the stomach will tolerate it, is generally sufficient to interrupt the paroxysms. Also a strong infusion of Strawberry root, taken freely during the interval, will generally effect a complete intermission.

After the paroxysms have been entirely interrupted, a radical cure should be attempted by giving the patient a mild alterative, such as Euonymine, one or two grains, three or four times a day. If the bowels are costive, and do not yield readily to the Euonymine, add  $\frac{1}{8}$  or  $\frac{1}{4}$  of a grain of Podophyllin, and give sufficiently often to maintain them in a soluble state.

If the spleen continues permanently enlarged, Diuretics of Marshmallow and Cream of Tartar should be drunk freely.

On the seventh, fourteenth, twenty-first, and twenty-eighth days succeeding the last paroxysm, one of the anti-periodic compounds should be given as at first.

If the patient resides in an ague district, daily baths of warm lye water, together with a free use of Cream of Tartar and Marshmallow, will have a tendency to prevent a recurrence of the disease.

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## REMITTENT FEVER.

Remittent Fever, like Intermittent, is generally preceded by lassitude and yawning, with soreness and stiffness of the muscles, especially those of the neck and calves of the legs. The tongue is covered with a light yellow coat.

The countenance is shrunken, pale, and of a leaden hue. The conjunctiva presents a congested appearance. The urine is thick and of a dark yellow color. The bowels are costive. The liver is congested, and yields flatness on percussion.

There is sense of weight in the Hypochondric and Epigastric regions. Creeping sensations of cold are succeeded by flushes of heat, the taste in the mouth is metallic, the skin is sallow, and sleep is disturbed by alarming dreams. These symptoms increase in intensity, until the attack of the disease is established. As the hot stage becomes developed, much of the pain about the legs and back frequently abates, although it often returns at the next exacerbation. Frequently, there is a sensation of chilliness, lasting from ten minutes to one hour, during which there is excessive thirst, nausea, and vomiting, mostly rejecting the fluids and medicine taken. There is intense fever with much tenderness of the Epigastrium and right Hypochondrium, which becomes painful upon pressure. The countenance is flushed, the eye has a wild expression, with a violent pain in the head, and in some cases delirium. The pulse is frequent, beating during the fever from 120 to 130 per minute. It is sometimes small and irregular, at others full and forcible. The tongue is mostly brown, with a dry streak through the middle. The bowels are costive, but, when acted upon, the discharges are black or yellow. The urine is scanty and muddy. These symptoms usually continue from six to ten hours.

The febrile paroxysm is superseded by a gentle perspiration on the head and shoulders, rarely extending over the entire body. There is now a mitigation of all the paroxysmal symptoms; yet there is by no means a perfect Apyrexia. The pulse is still quick and irritable, with Tinnitus Aurium, lassitude and much debility. This state is called the remission, and lasts from one to three hours,

when the febrile symptoms recur, and gradually increase, until they acquire their former intensity, and do not subside until after a period longer than that occupied by the first paroxysm. In the subsequent exacerbations, the symptoms all become aggravated, except the chill, which generally becomes less marked each succeeding paroxysm. These exacerbations generally occur in a double Quotidian form, although I have frequently observed them, both of single and double Tertian, and Quartan.

#### TREATMENT.

This fever, if timely treated, yields with much readiness to mild antiperiodic, and alterative remedies. As for instance, in the forming stage, combine thirty or forty grains of Cornine with equal parts of Euonymine divided into six powders, and give one every two or three hours, until a full antiperiodic and alterative impression is produced. This, with rest, and free bathing, will generally arrest the disease.

During the cold stage the patient should be placed in bed, and a hot pack be applied to the bowels, and also to the regions of the liver and spleen. Hot sinapisms should be placed along the spine and the calves of the legs, extending to the ankles and feet. As soon as the fever makes its appearance, the sinapisms should be removed, and the packs changed to tepid ones. The body should be freely sponged in warm lye water, every hour or two, as long as the fever lasts. The head should be packed in towels wrung out of cold water, and from ten to twenty of the Intermittent drops be administered every half hour.

These drops are composed of equal parts of fluid Ext. of Lobelia, Cypripedin and Scutellaria.

If the stomach will not tolerate them, from one to ten drops of the Tinct. Veratrum Viride may be given every fifteen or twenty minutes, until the same effect is produced.



After the remission is fully established, the following antiperiodic compound may be given.

℞ Quinine.....	gr. xx.
Phosphate of Iron .....	gr. x.
Ferrocyanide of Potassium.....	gr. j.

Mix, divide into six powders, and give one every two hours.

Or,

℞ Bebeerine.....	gr. xx.
Salicine .....	gr. xx.
Viburin .....	gr. xij.

Mix, divide into six powders, and give one every three hours. If the exacerbation comes on before the powders are all taken, give one eighth of a grain of Veratrine with each alternate powder, till the remission becomes distinct. Or give Tinct. of Veratrum in quantity sufficient to subdue the fever. If this antiperiodic should not completely arrest the disease, before repeating it, the bowels should be moved by giving one gr. of Jalapin, one half gr. of Phytolaccin, mixed with thirty grains of sugar, and given in three doses at intervals of one hour. If this should fail to produce Catharsis, give one teaspoonful of the fluid extract of Antibilious physic every half hour, accompanied with warm water injection until the bowels move freely. After which, give one of the above antiperiodic compounds as before. Or if the stomach become irritable,

℞ Quinine.....	gr. xx.
Cream of Tartar .....	gr. xxx.
Simple Syrup .....	℥ij.

Mix, and give one teaspoonful every hour until all is taken. If the stomach still continues irritable, thirty drops of the Tinct. of Gelseminum, and one grain of Morphine, may be added to the above mixture.

When the paroxysms are very severe, and accompanied

by congestion of some of the vital organs, and the natural increased intensity of the next exacerbation would prove disastrous to the patient, a large and full dose of some antiperiodic, in connection with an intermittent, should be administered at once. As for instance,

℞ Quinine..... gr. xx.  
 Scutellarine..... gr. x.  
 Cypripedin ..... gr. x.

Mix, divide into three powders, and give one every hour until all are taken. Or if the approaching exacerbation is near at hand, they may be given at still shorter intervals.

When the paroxysmal form of the fever is removed, little remains to be done, save to repair the local and constitutional injuries produced by the disease. To restore the deranged functions of the liver, one or two grains of Euonymine may be given night and morning.

The tone of the stomach may be restored by adding fifteen grains of Hydrastin to one half pint of Simple Syrup, and one eighth of a pint of gin, of which one or two teaspoonfuls may be given before each meal. If there is a tendency to relapse, or if the disease assumes an intermittent form, as it frequently does, the antiperiodic alterative, and tonic course, should be pursued until the paroxysms are arrested, and the causes removed.

## CONGESTIVE OR TYPHUS FEVER.

Much diversity of opinion exists relative to this disease. Some regarding it as a Continued Fever, of a highly contagious character, while others consider it as one of the modifications of malarial fever, belonging to the intermittent family.

The limits of this work not being sufficient to admit of a thorough investigation of this subject, the reader is re-

ferred to the American Eclectic Practice, by Jones and Morrow, for a more minute description of this disease.

#### SYMPTOMS.

It is preceded by languor, headache, disturbed sleep, loss of appetite, followed by chilliness, swollen tongue, and great debility. The bowels are costive, the urine scanty and high-colored, the countenance is dingy and heavy, the eyes watery, with congestion of the conjunctiva, which often extends to the nasal fossa and larynx. There is ringing in the ears, with Epistaxis, and sense of fulness in the Epigastrium.

These symptoms continue for two or three days, when the teeth become covered with dark sordes, the pulse becomes compressible, and the countenance is of a flushed appearance.

The debility becomes more marked from the tenth to the twentieth day, and the symptoms are all more aggravated.

There is incoherent talking, and delirium; the tongue becomes dark and dry, with tremor of the hands, and Subsultus Tendinum. The evacuations become involuntary, with retention of the urine, and interrupted breathing. The surface is covered with cold sweat, and the patient expires.

This fever lasts from ten to thirty days. It is frequently confounded with Typhoid Fever, from which, however, it may be distinguished, by the absence of petechiæ, the costive state of the bowels, and swollen condition of the tongue. Also, it usually assumes a more intermittent or remittent type.

Where congestive fever is about to terminate favorably, the symptoms are much milder than those described above, and from the tenth to the twentieth day there is a diminution in the severity.

TREATMENT.

There is generally more local congestion in this than any of the previous forms of fever, with almost a complete suspension of the assimilating functions. To remove the congestion, and restore the assimilating functions, is the prominent indication to be fulfilled. In the early treatment of this disease, hot packs should be applied to all parts of the body involved in the local congestion, except the head, which should be kept cool. For the purpose of restoring the assimilating functions of the stomach, producing intermission, and interrupting the paroxysmal character of the disease, the treatment should consist of those remedies possessing intermittent, antiperiodic, and stimulating powers, such as the following compounds :

- No. 1. R Quinine..... gr. xx.  
           T. Xanthoxylin ..... gr. xx.  
           Capsicum ..... gr. x.

Mix, divide into six powders, give one every three hours.

Alternate each powder with ten or fifteen intermittent drops.

Or,

- No. 2. R Quinine ..... gr. xx.  
           Capsicum..... gr. xx.  
           Veratrin ..... gr. ij.  
           White Sugar ..... gr. xx.

Mix, and divide into ten powders, and give one every two or three hours.

Or,

- No. 3. R Camphor..... gr. v.  
           Quinine ..... gr. xx.  
           Viburine..... gr. x.  
           White Sugar ..... gr. xx.

Mix, and divide into twenty powders, and give one every two or three hours.

Or,

No. 4. R Eupatorine.....	gr. xx.
Alnuin .....	gr. xx.
Aconitine .....	gr. lss.
White Sugar .....	gr. xx.

Mix, divide into six powders, and give one every two or three hours.

Or,

No. 5. R Scutellarine.....	gr. xx.
Chinoidin .....	gr. xx.
Oil Capsicum.....	gutt. iij.
White Sugar .....	gr. xx.

Mix, divide into eight powders, and give one every two or three hours.

To act as an alterative after the fever is broken :

R Euonymine.....	gr. xx.
Podophyllin .....	gr. ij.
White Sugar .....	gr. xx.

Mix, divide into ten powders, and give one every three hours.

The bowels should be kept open, during the treatment of this disease, by giving small doses of neutralizing mixture and Euonymine, and the body should be freely sponged with lye water and whiskey. In cases where there is evident derangement of the stomach, with costive state of the bowels, an emetic and cathartic should be given, previous to the administration of the antiperiodic powders. A teaspoonful of common emetic acetic Tinet. in warm ginger tea, may be given every ten or fifteen minutes, until the stomach is thoroughly evacuated. This should be followed by small doses of Podophyllin and neutralizing mixture, until free catharsis is produced. In cases where there are severe paroxysms, and the local congestion is likely to prove disastrous to the patient, the antiperiodic

should be administered first, and the emetic and cathartic should follow.

But, whether the emetic and cathartic, or the powders be given first, if they fail to arrest the paroxysms, there should be a repetition of the antiperiodic powders after two or three days. During the interval, the patient should drink freely of some mucilaginous preparation, as marshmallow, flaxseed, or slippery elm. At the same time, if the skin be dry, from five to ten drops of Tinct. of Veratrum may be given to produce moisture. If, after pursuing the above course of treatment a week or ten days, the fever still proves persistent, the following compound may be given :

R Ferri Ferrocyanide.....	gr. xx.
Quinine .....	gr. xx.
Piperine .....	gr. x.
Gelsemin .....	gr. ij.
White Sugar.....	gr. xxx.

Mix, triturate, divide into ten powders, and give one every two or three hours.

If, during the progress of the disease, there is troublesome Epistaxis, a snuff of Matico leaves may be used, or an infusion of them may be injected into the nostrils. If there is much restlessness and inability to sleep, one-eighth of a grain of Hyosciamin, with Cypripedin and Scutellarin, each one grain, given two or three times a day, will control the symptoms. Where there is tendency to syncope :

R Carbonate of Ammonia.....	gr. v.
Gum Camphor.....	gr. v.
Capsicum .....	gr. x.
Pulverized Acacia .....	gr. xxx.

Triturate, mix, and give one as often as indicated. During the treatment of this disease, the patient's strength should be maintained by a free use of beef tea, boiled



rice, and such other nutritious food as the stomach will tolerate. During the convalescence, a mild alterative and tonic course should be pursued.

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Thus far we have been treating of fevers which are admitted to have their origin in marsh miasm, or are produced by exposure to damp atmosphere contaminated by noxious gases, and decomposing vegetable matter, mostly affecting the spleen, producing Intermittent; or, the spleen and liver, producing Remittent; or, the spleen, liver and nervous system, producing Typhus or Congestive fever. But we now come to the treatment of a disease which is supposed to have its origin in both animal and vegetable miasm. And to confine its morbid influence mostly to the small glands of the bowels, producing more or less extensive ulcerations. This is called

### TYPHOID FEVER.

This is a fever which has received quite a number of names. Such as Enteric fever, Continued fever, Bilious fever, Bilious Continued fever, and Nervous fever. But the name by which it is most commonly known is that of Typhoid Fever.

#### SYMPTOMS.

Few diseases are so remarkably insidious, in their approach, as this fever; its commencement being almost imperceptible. Its incubation generally lasts from three or four days to as many weeks. The patient feels at first slight debility, with a dull and heavy feeling in the head, which continues to increase, terminating in violent frontal headache. By the time the disease becomes fully developed, the limbs are weak, with lameness, and in some cases, rheumatic pains. The bowels are at first slightly constipated; but in the course of a few days, there is a strong tendency to diarrhæa. The pulse is accelerated,

and a creeping chilly sensation is felt, commencing in the back, and passing over the entire body. The chilliness is soon followed by a slight increase of all the symptoms, together with a dry and warm state of the skin. These partial paroxysms, frequently follow each other in rapid succession; but sometimes there is an interval of several hours. The tongue is but slightly coated, and the appetite remains nearly natural until the disease becomes fully developed. Indeed, in a large number of cases which have come under my observation, there is no anorexia during the entire progress of well-marked cases of this disease.

About this time, there may be observed a number of small white vesicles or sudaminæ, at first mostly confined to the abdomen, but afterwards extending over the entire body. These sudaminæ, although frequently appearing in other fevers, are more generally present in this. These vesicles, unless carefully observed, will escape notice, as they are frequently so small as to be scarcely perceptible to the naked eye; being seldom larger than half the head of a pin. To the casual observer, they might easily be mistaken for partial, detached, dermoid scales. But when pricked with the point of a needle, a small quantity of a thin white fluid may be seen to escape. On the fifth day from the appearance of the sudaminæ, another eruption appears which is diagnostic of this disease. It is small, red, or purple spots or eruption, resembling flea-bites.

At first they are very small, so small that without the aid of some magnifying power the larger portion of them cannot be seen. They are at first perceptible just above the ileo-cæcal valve, or about one and one half inches above the crest of the ileum, and extend over all parts of the body; but are mostly confined to small patches of skin corresponding to the ulcerated parts of the bowels. These spots are called *petechiæ*. They are small circumscribed *red spots* when fully developed. They may be

distinguished from most other forms of eruption, by disappearing on pressure, but returning again the moment the pressure is removed. They come and go, appearing and disappearing; but their presence or absence during the active stage of the disease, is a sure index to the state of the bowels. As when the bowel symptoms are aggravated, the petechiæ disappear; but when they become ameliorated, are again visible. This leads me to infer that Typhoid Fever, like Scarletina, is an eruptive disease, and that to maintain the eruption on the surface, is a very important indication to be fulfilled in its treatment. When the disease becomes fully developed, and in some cases, in the forming stage, the bowels yield a marked tympanitic resonance on percussion.

On inspection, a bloated or tympanitic condition of the bowels may be observed, and most marked, beneath the patches of petechiæ.

About this stage of the disease, the nervous symptoms become aggravated, amounting in many cases to delirium, and in others producing great pain in different parts of the body, as the knees, hips, abdomen, side and head. These pains are mostly transitory, or appear in the form of paroxysms. In a few cases the patient inclines to stupor, but generally the opposite is the case, the patient being restless and wakeful. There is a buzzing noise in the head, very much like that caused by full doses of Quinine.

The tongue, by this time, mostly assumes a red appearance, especially upon the tip and edges, and the papillæ become elevated. When it is protruded it may be seen to tremble, and in some cases it is protruded with much difficulty. The pulse increases in frequency, but diminishes in fulness; and in the latter part of the disease it becomes very compressible. The eyes have a watery appearance,

and when the bowels become extensively ulcerated, they have a vacant stare and remain partly open during sleep.

The breathing is laborious, the mouth is half open, and sordes accumulate upon the teeth. The urine, which was somewhat scanty, now becomes nearly suppressed, having a dark red appearance, generally containing a large per cent. of albumen. The bowels continue to bloat, the evacuations are frequent, sometimes watery and frothy, at other times dark and offensive, and mixed with blood; or, the entire discharge may consist of blood amounting to active hemorrhage; being mostly of a dark venous character, although I have seen it of a bright red color, or of the appearance of fresh arterial blood. This symptom, although alarming and dangerous if persistent, is frequently followed by speedy recovery. The skin is not as dry and hot as in many fevers, yet it is frequently pungent, and has a husky feeling. The pulmonary organs generally sympathize with affections of the bowels, and especially is it the case in this disease. Hence we find Crepitant Rhonchus, and frequently a slight cough. If the disease is about to terminate fatally, the symptoms will continue to increase in severity, the patient will become stupid with low muttering delirium, subsultus tendinum, picking at the bed-clothes, coma, and death. Or frequently the ulceration of the bowels may terminate in perforation, followed by a discharge of the contents into the cavity of the abdomen, producing at first much pain, but soon subsiding, the patient becomes covered with a cold clammy sweat, the pulse ceases at the wrist, the bowels evacuate involuntarily, and the patient sinks into the arms of Death.

Or what is more frequently the case, where mischievous medication has been avoided, the symptoms will continue in a somewhat modified form from fourteen to twenty-one days, when they gradually become ameliorated, and the

patient recovers. The average mortality of this disease is only about 10 per cent. or from 15 to 20 per cent. less than it is under Allopathic treatment.

#### TREATMENT.

In no disease is there more mischief done by an improper course of medicine than in this.

The practice of giving active purgative medicine in the commencement of a fever, with the notion of puking and purging it from the system, has increased the mortality to an alarming extent. For after a drastic purgative, it is almost impossible to cure Typhoid Fever, no matter how prudent your after course may be. First, in the treatment of this disease, the skin should be thoroughly bathed in warm lye water and whiskey. The patient should then be placed in bed, when, if the bowels are costive, they should be moved by warm water injections. If the stomach contains indigestible food, or if there should be a marked indication for an emetic, one-eighth of a grain of Lobelin may be given in a wine-glass of warm ginger tea every ten or fifteen minutes, until the stomach is thoroughly evacuated. After this the patient should drink freely of beef tea and rice gruel. When the stomach becomes settled, or the effect of the emetic has passed off, give from one to five drops of the Tinct. of Aconite in a tablespoonful of water every half hour, until the pulse becomes less frequent and the skin moist. At the same time apply warm lye poultices to the bowels, made by adding one teaspoonful of mustard-seed to ten tablespoonfuls of slippery elm, wet with strong saleratus water. These poultices should be changed as often as three or four times a-day, and continued as long as the bowel symptoms prove troublesome.

When the pulse becomes controlled by the Aconite, the next thing is to interrupt the periodicity of the disease, by giving the following antiperiodic.

R Quinine..... gr. xx.  
Hydrastin..... gr. xx.  
White Sugar..... gr. xxxx.

Mix, divide into six powders, and give one every three hours until all are taken.

At the same time, give freely of mucilage, such as a cold infusion of pulverized marshmallow, acacia, or flax-seed. Also apply water to the head. If the patient is of a bilious temperament, and full habit, the water should be cold. If of a nervous temperament, with low vitality, the water should be tepid, and mixed with a little whiskey. The feet should be kept warm, and the patient remain quiet in bed.. At the same time give a sufficient quantity of Aeonite to control the fever, and to maintain the petechiæ upon the surface. If there should be diarrhæa, small doses of equal parts of Erigeron and Rhusine should be given two or three times a-day. If the patient be restless and unable to sleep, from the sixteenth to an eighth of a grain of Morphine may be mixed with one or two grains of Cypripedin, and given at bed-time. If the diarrhæa proves persistent, in addition to the Rhusine and Erigeron, injections should be given two or three times a-day, composed of from four to six ounces of starch-water, half a grain of Morphine, and from five to ten grains of Tannin. If the Aeonite fail to maintain the petechiæ upon the surface, one half grain of Macrotin should be given in connection with it. If, after pursuing the above treatment for six or seven days, the disease should not be arrested, the antiperiodic should be repeated by giving the following compound :

R Phosphate of Iron..... gr. x.  
Quinine..... gr. xx.  
Rhusine..... gr. xx.  
White Sugar..... gr. xxxx.

Triturate, mix, and divide into six powders, and give one every three hours until all are taken.



At the same time, the Aconite and anti-diarrhæa medicines should be given if indicated. If the bowels should become persistently tympanitic, with extensive ulceration, the Tinet. Bryonia should be substituted for the Aconite, and the patient prohibited from assuming the upright posture, as in all such cases there is great danger of perforation. Where there is much debility, a permanent tonic may be given in connection with Chalybeates, such as the following compound :

R Iron per Hydrogen..... gr. xx.  
 Hydrastin ..... gr. xx.  
 White Sugar..... gr. xxx.

Triturate and mix, divide into ten powders, and give one every two or three hours, during the interval between the antiperiodic medicine.

During the entire course the patient's strength should be maintained by a free use of the Essence of Beef, made by adding one pound of beef to one quart of water and one half pint of vinegar. Boil the beef till the liquid is one half evaporated. Then strain; add one pound of White Sugar and eight ounces of rice flour, boil fifteen minutes, strain again, add one half pint of best Old Whiskey, one tablespoonful of salt, and bottle for use. Give the patient from one half to one wine glass full four or five times a-day. Also Porter or Scotch Ale, toast, or broiled beef may be allowed when the stomach will tolerate it. In the event that the medicine already prescribed fails to maintain the petechiæ upon the surface, the Tinet. of Serophularia may be given to the amount of twelve drops three or four times a day. If necessary to restore the eruption, hot brandy toddy may be given in connection with the above. If symptoms of softening of the brain appear, from one to five drops of Tinct. Phosphorus may be given two or three times a-day in a large quantity of mucilage. If dangerous hemorrhage from the bowels occur :

R Nitrate of Silver..... gr. j.  
 Pulverized Acacia..... gr. xxx.

Pulverize, mix, make sixteen pills, and give one every hour until all are taken, or until the hemorrhage is controlled. Or give from ten to fifteen grains of Matico every three or four hours. If an alterative is indicated, small doses of Leptandrin may be given three or four times a day. Where the disease is firmly established, much care must be observed relative to the administration of medicine, never giving any, unless some marked indication demands it; frequently all the medicine necessary is a few drops of Aconite two or three times a-day, with a liberal quantity of mucilaginous drinks, one or two courses of antiperiodics, and a liberal supply of food. Yet where there is a decided indication for treatment, it should be met with promptness. During convalescence, small doses of Hydrastin, in connection with Chalybeates, should be administered.

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## YELLOW FEVER, OR TYPHUS ICTERODES.

This disease prevails endemically in tropical climates, but only appearing at the North as an epidemic. It is generally supposed to have a compound origin arising from the effects of animal and vegetable miasm.

### SYMPTOMS.

The premonitory symptoms very much resemble those of Typhoid Fever, except that they are more rapid in their course. The skin is hot and dry, the face flushed, the respiration hurried, the eyes are red and watery, and there is nausea and vomiting. As the disease advances, these symptoms all become aggravated, and the diagnostic symptoms make their appearance.

The countenance assumes a peculiar cadaverous expression, and is of a bright saffron color. The tongue is soft and swollen, and there is pain in the Epigastrium. During the progress of the disease, the symptoms are variable in different individuals and localities, sometimes running an exceedingly mild course, with little more severity than ordinary Remittent Fever, while in other cases the disease is marked with great prostration. In the first stage the pulse sinks, there is nausea, and vomiting of a dark frothy fluid; the respiration is exceedingly difficult and hurried. There is also low muttering delirium. The alvine evacuations are large and dark, the patient rapidly sinks, and death soon relieves him, unless the disease is arrested by timely treatment.

#### TREATMENT.

The first thing to be done in the early stage of the disease is to give a stimulating emetic :

R Pulverized Lobelia .....	gr. x.
“ Bloodroot .....	gr. xij.
“ Capsicum .....	gr. xx.

Mix, add one gill of warm water, steep fifteen or twenty minutes, and after giving the patient three or four wine-glasses full of warm ginger tea, give one teaspoonful of the mixture, and repeat until a thorough evacuation of the stomach is produced.

Immediately after the emetic, give a spirit vapor-bath by placing a blanket about the patient and chair, and burning a cup of alcohol beneath it, to produce a copious perspiration : at the same time give the patient freely of weak salt and water to drink. After the sweat, a thorough bathing and rubbing will prepare the patient for bed. The following compound may then be given :

R Quinine .....	gr. xx.
Chloride of Sodium.....	gr. xxx.
Capsicum .....	gr. x.

Mix, divide into eight powders, and give one every three hours until all are taken. At the same time, warm poultices should be applied to the abdomen and stomach, and hot sinapisms to the feet and calves of the legs, and a warming plaster along the spine.

When the antiperiodic mixture has been taken, the fever and circulation should be controlled by the use of Aconite, and rest should be induced by giving Cypripedin and Scutellarin, or by small doses of Morphine. The bowels should be moved by the following alterative :

R Euonymin .....	gr. x.
Jalapin .....	gr. ij.
Xanthoxilin .....	gr. x.
White Sugar .....	gr. xxx.

Triturate, mix, divide into six powders, and give one every two or three hours.

If there is much nausea and vomiting, the following compound may be given :

R Vinegar .....	Oss.
Common Salt .....	ʒj.
Capsicum .....	gr. xx.

Mix, and give one teaspoonful every ten or fifteen minutes, as the symptoms may indicate. If the disease should not yield to the above treatment, within the course of three or four days, the following antiperiodic should be administered :

R Salicine .....	gr. xxx.
Quinine .....	gr. xv.
Iron by Hydrogen .....	gr. xx.
Capsicum .....	gr. x.

Mix, divide into six powders, and give one every three hours. At the same time give the patient freely of Ess. of Beef as directed under Typhoid Fever. Once or twice a day the patient should be bathed with warm lye water, and allowed to drink of porter or good ale, whenever

the active fever does not contra-indicate. Local congestion or inflammation should be relieved by hot or cold packing, as the case may require. During the convalescence, alterative doses of Podophyllin, with Hydrastin as a tonic, may be given once or twice a day, together with a free and generous diet. If there should be symptoms of a relapse, the antiperiodic remedies should be repeated.

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## INFLAMMATION.

Inflammation is always located in the capillary vessels. Hence, tissues destitute of these vessels are never capable of taking it on, as the hair, nails, cuticle, and enamel.

Filamentous tissues, on the other hand, as the liver, lungs, and mucous and serous membranes, are very liable to inflammation. The first step towards the inflammatory process is an accumulation of blood, which is congestion. This accumulation may occur either from too slow venous or too rapid arterial circulation. Or it may arise from debility of the capillary vessels, or from all these causes combined. The congestion may disappear by a diminution in the afflux, together with a restoration of the normal functions of the capillaries. Or it may terminate in inflammation by the blood beginning to oscillate in the vessels, adhering at different points until finally it stagnates.

The blood failing to be converted into venous blood, its coagulability is increased so that the globules coalesce and form minute clots. New vessels or canals are formed by globules of blood bursting the vessels and passing into the adjacent parenchyma, reaching another vessel, thus forming new passages through the areolar tissue, which ultimately become capillary tissue. Or the corpuscles may remain in the adjacent parenchyma, producing swelling by effusion. In active congestion, the contractile powers of the vessels are lost by over-distension, the blood stagnates.

the coats of the capillaries become diseased and ruptured, resulting in extravasation or effusion of blood, coagulable lymph, and serous or muco-purulent fluid.

#### THE SYMPTOMS

Are redness, swelling, pain, and increased heat. The redness is owing to an increased accumulation of blood in the part. The swelling to infiltration, to accumulation of blood and pus, and to œdema of the lymphatics. The pain is produced by the tension, and the pressure made on the nerves of the parts, with the increased sensibility. The heat is caused by oxydation of effete matter and adipose tissue, and retention of natural animal heat.

The termination of inflammation is 1st, resolution; 2d, suppuration; 3d, mortification.

Resolution may be preceded by Metastasis, as in mumps or rheumatism. The symptoms which precede resolution are increased perspiration, diarrhœa, changes in the urine, and hemorrhage. In effusion, we have formation of false membrane, as in croup. Suppuration is the conversion of coagulable lymph into pus. Mortification, Gangrene, or Sphacelus, is the complete death of the part.

#### TREATMENT.

The first indication to be fulfilled in the treatment of inflammation, is to equalize the circulation, and restore the lost functions of the capillaries.

Veratrum, Aconite, and Gelseminum, with the ligature, will enable us to control the circulation. While Podophyllin, Jalapin, with Bitartrate of Potassa, will relieve the vessels of the plethora, if that should be a cause of the disease.

But as the treatment of inflammation depends in a great measure upon its locality, the remedies will be given under the head of inflammation of the different tissues.



PHRENITIS, OR ENCEPHALITIS, AND  
MENINGITIS;

(OR INFLAMMATION OF THE BRAIN AND ITS MEMBRANES.)

## SYMPTOMS.

A vague uneasiness of the mind, defective appetite, dizziness with vertigo. The pulse is hard and bounding, the eyes have a wild and anxious expression. The patient complains of great debility, and a sense of numbness in one side of the body; the numbness being on the opposite side from the location of the disease, and the patient lies mostly on the back. There is ringing in the ears, which very much increases as the disease advances. In the early stage of the disease, the pupil of the eye is preternaturally contracted; but in the latter stage, the pupil is much dilated, and light becomes intolerable.

As the disease advances, there are convulsive muscular movements, with more or less delirium. The respiration is irregular, the skin hot, there is nausea and vomiting, the bowels are confined, and in most cases there is obstinate costiveness. These symptoms may all become aggravated, terminating in subsultus, picking at the bed-clothes, stupor, coma, suppression of the urine, colliquative sweat, stertorous respiration, and death.

Or the symptoms may all become ameliorated, and the patient recover.

## CAUSES.

1. Accidents.
2. Intemperance in eating and drinking.
3. Metastasis of inflammation from other parts.
4. Mental excitement.
5. Exposure to atmospheric vicissitudes.
6. Animal and vegetable misasm.

## TREATMENT.

After due attention to the cause of the disease, the bowels should be thoroughly evacuated, by giving the following compound :

℞ Podophyllin ..... gr. ij.  
 Jalapin..... gr. j.  
 White Sugar..... gr. xx.

Mix, divide into eight powders, and give one every hour until they act as a liberal purgative. At the same time apply ligatures to the legs and arms by placing a bandage around them sufficiently tight to prevent the return of the blood by the veins, but allowing it to pass into the limbs through the arteries. Care should be taken not to produce complete syncope ; but the ligatures should be used sufficiently to deplete the brain and thereby relieve the distended capillaries. The ligatures should be tightened or loosened according to the emergency of the case and the indication to be fulfilled. In removing them, much care should be taken to loosen them one at a time, and at sufficient intervals to allow the blood to return to the body by degrees. At the same time cold packs should be applied to the head, and changed sufficiently often to keep them cool. A warm sinapism should be placed along the spine, and the patient caused to take Aconite until a free diaphoresis is produced. The surface should be freely bathed in strong lye water two or three times a day, together with hot foot-baths.

If the disease does not yield to the above treatment, the purgative should be repeated.

After which the following compound should be given :

℞ Digitalin ..... gr. j.  
 Sanguinarin..... gr. ij.  
 White Sugar ..... gr. xx.

Mix, divide into eight powders, and give one every two

or three hours. If there be periodicity connected with the inflammation, give the following compound :

R Quinine.....	gr. x.
Phosphate of Iron .....	gr. xx.
Veratrine.....	gr. j.
White Sugar.....	gr. xx.

Mix, triturate, divide into ten powders, give one every two or three hours as may be indicated. During the treatment, the patient should be kept quiet, and in bed, and recourse should be had to the ligature, when the determination of the blood to the head should indicate it. The diet should be principally fluid, and of easy digestion.

## THRUSH, INFANTILE SORE MOUTH.

This disease mostly occurs in children from one to three months old.

### CAUSES.

Unhealthy milk and an accumulation of effete matter and lactic acid, which comes in contact with the mucous surface of the child's mouth, while nursing, producing abrasion.

### SYMPTOMS.

Small white specks appearing, either single or in clusters, having a dark and inflamed base, which continues to spread and coalesce until the entire mucous surface is involved in the disease.

### TREATMENT.

Remove the cause. Bathe the breast frequently in weak lye water, and thoroughly cleanse the nipple each time before the child nurses, and give the following compound :

R Hydrastin.....	gr. x.
Rhusine.....	gr. x.
Neutralizing Mixture .....	℥ij.

Give the child from fifteen to twenty drops two or three times a day; also wash the mouth in a weak solution of Hydrastin.

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## FOLLICULAR STOMATITIS, OR NURSING SORE MOUTH.

Symptoms are transparent whitish vesicles on elevated salivary glands. The vesicles break, and the fluid denudes the mucous surface of the Epithelium, causing inflammation and ulceration, the ulcers often extending over the entire mouth, and in some instances to the Œsophagus and stomach, producing general constitutional disturbance.

### TREATMENT.

℞ Neutralizing Mixture..... ʒij.  
 Salicine..... gr. xxx.  
 Rhusine ..... gr. xx.

Mix, give one teaspoonful every two or three hours during the day. The mouth should be washed in a strong solution of Hydrastin both before and after each meal.

If the disease does not yield to the above treatment, the following antiperiodic and tonic should be given :

℞ Myricin..... gr. xx.  
 Cornine ..... gr. x.  
 Iron by Hydrogen..... gr. x.  
 White Sugar..... gr. xxx.

Mix, divide into ten powders, and give one every three hours; after which give the following mixture :

℞ Neutralizing Mixture..... ʒiij.  
 Myricin..... gr. x.  
 Helonin..... gr. xx.

Mix, give one teaspoonful three times a day.

If there is debility, give the gin bitters of the American Eclectic Dispensatory in quantities indicated.

The surface should be bathed every day in warm lye water. The diet should consist of animal broths; broiled beef, rice, bread and milk, &c.

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## QUINSY—CYNANCHE TONSILLARIS.

### SYMPTOMS.

The parts involved in this disease are the tonsils and adjacent mucous surface. They appear red and swollen. The patient complains of great pain and difficulty in swallowing. The pulse becomes quick and hard, and the breathing nasal and laborious.

These symptoms are generally preceded by rigors or chills, alternated with flashes of heat. The tongue is covered with a light coat, the bowels are confined, the eyes are suffused and red, and the face swollen. As the disease advances the swelling increases, and the patient expectorates a thin viscid mucus. The throat, ears and eyes become painful, the breathing and deglutition more difficult, and the patient is compelled to assume the erect position on account of the great dyspnœa.

### TREATMENT.

The patient's feet should be placed in hot water, and, in the early stage of the disease, a sufficient quantity of the acetic emetic Tinct. should be given to produce free emesis. After which the surface should be thoroughly bathed in warm saleratus water, and the patient placed in bed, with jugs of warm water to the feet, and an onion poultice to the throat. If there is much fever, from three to five drops of the Tinct. of Veratrum should be given from every half hour to an hour; until the fever subsides.

At the same time the throat should be thoroughly washed by means of a probang, with a weak solution of

nitrate of silver and Hydrastin. The bowels should be opened by small doses of Podophyllin and antibilious physic. If the swelling produces dangerous dyspnœa, the tonsils should be freely scarified with a sharp-pointed bistoury, and a strong solution of sulphate of zinc applied by means of the probang. Also apply to the throat, before the application of each onion poultice, a liniment composed of equal parts of Acetic Tet. of Beef's Gall, Gelseminum and Camphor. The patient should be kept quiet, and during convalescence the diet should be light and nutritious.

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## OTITIS, OR INFLAMMATION OF THE EAR.

### CAUSES.

Local injuries, Scarlet Fever or inflammation of the Eustachian Tubes.

### SYMPTOMS.

Pain, ringing in the ears, &c. Diagnosis is easily made with the Speculum.

### TREATMENT.

Remove the cause, after which apply hot packs to the ear, and introduce lint, saturated with equal parts of Tinct. of Lobelia and Aconite. If there are constitutional symptoms, give a mild purgative of Euonymine and neutralizing mixture. If there is fever, give Eupatorin one or two grains three or four times a-day; also from five to ten drops of the Tinct. of Gelseminum every two or three hours until the fever abates. If there is ulceration, use a mild zinc wash; Compound Syrup of Stillingia, given in quantities sufficient to act as a mild alterative, will generally be adequate to a cure.



GASTRITIS, OR INFLAMMATION OF  
THE STOMACH.

## SYMPTOMS.

Vomiting, great thirst, precordial distress, a quick and hurried pulse, tenderness in the Epigastrium, with the tongue mostly dry and hard and the papillæ elevated. The skin is hot and dry, the urine scanty, and the bowels constipated. As the disease advances, the patient is restless and peevish, the countenance has a distressed, shivered and anxious appearance.

The nausea becomes constant, and every substance taken into the stomach is immediately rejected. The appearance of the rejected contents of the stomach is at first a greenish mucus, mixed with the ingesta; but if the disease is about to terminate in mortification, and death, they will become dark, and will finally have the appearance of coffee grounds.

## CAUSES.

Worms, irritating substances taken into the stomach, or as is more frequently the case, it is one of the local symptoms of idiopathic fever.

## TREATMENT.

After giving due attention to the cause of the disease, the feet should be placed in warm water, and the entire surface of the body thoroughly bathed in broke water and whiskey. After which, from one to ten drops of the Tinct. of Aconite should be given every fifteen or thirty minutes until a gentle perspiration is produced.

At the same time, the bowels should be evacuated by means of stimulating injections, and warm sinapisms applied to the Epigastrium.

After continuing the above treatment for five or six

hours, if the symptoms do not yield, the Tinct. of Bryonia may be substituted for the Aconite, and the patient caused to drink freely of mucilage, as Gum Arabic, Slippery Elm, Flaxseed, &c.

The sinapisms should be removed after having caused irritation, and hot packs applied in their place.

If, after pursuing the above treatment for ten or twelve hours, the inflammation still proves persistent, and the cause of the disease has been removed, a thorough spirit-sweat should be given, and the hot packs continued, and warm sinapisms applied to the feet. Also from one to five drops of the Tinct. Rhus Radicans given every hour until the disease becomes mitigated.

If it assumes an intermittent form, some of the anti-periodic compounds should be administered by means of starch-water injections, sufficiently to arrest the disease.

The diet should be fluid, but nutritious.

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## DYSPEPSIA, OR INDIGESTION.

### CAUSE.

Debility of the stomach, and whatever prevents a normal secretion of gastric fluid.

### SYMPTOMS.

Pain in the stomach after eating, palpitation of the heart, sharp and pinched features, furred tongue, irritable temper, wakefulness, a costive condition of the bowels, dry and husky skin, and debility.

### TREATMENT.

R Populin .....	gr. xx.
Sanguinarin .....	gr. x.
White Sugar .....	gr. xxx.

Triturate, mix, divide into sixteen powders, and give one four times a day. After which,

R Hydrastin.....	gr. xxx.
Syrup of Sugar.....	Oss.
Muriated Tinct. of Iron.....	℥j.

Mix, and take one teaspoonful three times a day before meals.

If the above prescriptions do not give relief, the following compound may be administered :

R Neutralizing Mixture.....	Oss.
Aletrin.....	gr. x.
Chloride of Sodium.....	℥ss.

Mix, and give one teaspoonful three times a day.

A mixture of animal and vegetable diet should be taken at regular intervals, and thoroughly masticated.

A free state of the bowels should be maintained by the use of bran-water, salt and water, ripe fruit, etc. ; and the surface should be sponged several times a week in cold or warm water, as circumstances indicate.

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## ENTERITIS, OR INFLAMMATION OF THE SMALL INTESTINES.

In simple Enteritis, there is deep-seated pain in the umbilical region, and sometimes in other parts of the intestinal tubes. The pain is more or less constant, yet it is subject to paroxysmal aggravations, and is increased by pressure. The patient manifests restlessness by constant motion of the arms and legs. As the disease advances, the pulse becomes hard and wiry, the skin dry, and sometimes pungent, the tongue is covered with a dark brown coat ; and in later stages, there is diarrhæa and a bloated condition of the bowels.

TREATMENT.

The stomach should be thoroughly evacuated by Lobelia and Sanguinaria, in quantities sufficient to produce active emesis. As soon as this is effected, give a spirit vapor-bath, and wash the patient in strong saleratus water. A sinapism should be placed over the bowels, and Aconite administered in one or two-drop doses every ten or fifteen minutes until free diaphoresis is produced. If the symptoms should not become mitigated in ten or fifteen hours, the following antiperiodic should be given :

R Gelsemin ..... gr. i.  
 Sanguinaria ..... gr. x.  
 White Sugar ..... gr. xxx.

Triturate, mix, divide into ten powders, and give one every two or three hours. At the same time, if the fever prove obstinate, one or two drops of the Tinct. of Bryonia may be given between each powder.

When the sinapism has produced free counter-irritation, warm packs may be applied to the bowels.

If the disease assumes a periodic character, some of the antiperiodic mixtures should be given. The convalescence should be carefully watched, and the diet well regulated.

DYSENTERY, OR COLITIS, (AN INFLAMMATION OF THE COLON).

SYMPTOMS.

Acute dysentery commences with uneasiness, soreness, and sense of weight in the lower part of the bowels, and a constant desire to go to stool.

In the course of from five to twenty-four hours, the diarrhæa is changed to mucus mixed with blood. As the pain and tenesmus increase, the skin becomes hot and dry, the urine red and scanty, and not unfrequently there is much pain in micturition.

The tongue is covered at first with a light coat, which soon becomes heavy and of a dark brown color. The pulse varies in frequency and fulness according to the severity of the case. In children, there are more or less brain symptoms, which not unfrequently prove the most obstinate feature of the case.

#### CAUSES.

In children the disease is not unfrequently caused by ascarides in the lower portion of the rectum. Also by anything which tends to obstruct the portal circulation, and causes a sudden determination of the blood from the superficial capillaries to the deep capillaries of the bowels.

#### TREATMENT.

To ascertain the cause, and as far as possible to remove it, are the first things to be done in the treatment of this disease, as well as all others.

If the tongue is coated, and the stomach in a condition to indicate it, an emetic of Emetine or Lobelia may be given. During the operation, the patient should drink freely of some warm aromatic tea.

As soon as the effect of the emetic has passed off, the spirit vapor-bath should be given; after which the surface should be thoroughly bathed in warm lye water, and the patient placed in a recumbent position in bed.

If there is obstruction of the portal circulation from congestion of the liver or otherwise, the following purgative should be given :

R Podophyllin .....	gr. x.
Neutralizing mixture .....	℥ij.
Pulv. Acacia .....	gr. x.

Mix, and give one teaspoonful every half hour until free catharsis is produced. Afterward give the following anti-periodic :

℞ Chloride of Sodium .....	ʒj
Quinine .....	gr. x.
Oil of Gaultheriæ .....	gutt. vi.

Triturate, divide into ten powders, and give one every two or three hours until all are taken.

During the administration of the powders, if there is much tenesmus, injections of starch-water, to which are added two or three grains of Tannin, and from one-fourth to one-half a grain of Morphine, should be given every five or six hours.

If there is frequent pulse, connected with fever, Aeonite or Veratrum should be given in sufficient quantities to maintain a gentle moisture of the skin.

If, after giving the antiperiodic, the passages should still be frequent and painful, the following compound may be given :

℞ Neutralizing Mixture.....	ʒij.
Myricin and Rhusin .....	aa gr. x.
Morphine .....	gr. ij.
Ess. of Anise .....	ʒi.

Mix, and give from one-half teaspoonful to a teaspoonful every two or three hours, as the case may indicate.

Also apply the following liniment to the abdomen :

℞ Chloroform .....	ʒjss
Tet. of Camphor.....	ʒij.
Oil of Olives .....	ʒiij.

Mix, and apply to the bowels four or five times a day, followed by the application of hot dry flannel.

If the passages should be large and consist principally of blood, from five to ten drops of the oil of Erigeron should be given every two or three hours, in connection with the above treatment.

Where brain symptoms prove troublesome, the bowels should be kept open, and a free use made of Capsicum,



and diuretics, in connection with the other remedies. If there is heat in the head, cold packs should be applied, also sinapisms to the back of the neck.

The diet should consist of beef tea, boiled rice, soft ripe fruit, and such other articles of food as the condition of the patient may indicate. The convalescence should be watched with great care, as regards both diet and exercise.

## ACUTE PERITONITIS, OR INFLAMMATION OF THE PERITONEUM.

### SYMPTOMS.

There is a sharp pain in the abdomen over the region of the part inflamed. Soon after the first attack, there is generally more or less of a chill, followed by a decided reaction and fever. The pulse soon becomes quick, wiry, and weak, and the tongue is covered with a light brown coat. The abdomen is tympanitic, and frequently there is nausea and vomiting. The patient assumes a recumbent position, as pressure causes much pain. The skin is hot and dry, the urine generally scanty and high-colored. As the disease advances, the extremities become cold, the eyes have a peculiar anxious expression, the body is covered with a cold clammy sweat, and the patient expires. Or these symptoms may all become ameliorated, and result in gradual recovery.

### TREATMENT.

℞ Podophyllin..... gr. i.  
Ext. of Anti-Bilious Physic..... ʒi.

Mix, and give one teaspoonful every fifteen minutes, until it operates as a cathartic. After which, give the following antiperiodic :

R Quinine..... gr. xx.  
 Gelsemin..... gr. i.  
 Capsicum..... gr. xx.

Mix, divide into six powders, and give one every three hours, until all are taken. At the same time, if there is fever, give Aconite sufficient to control it. Also apply a poultice to the abdomen, made of one pint of oil meal, and one tablespoonful of mustard, wet with warm water, and change as often as becomes necessary, to keep up a gentle irritation of the surface.

If, after the antiperiodic has been given, the symptoms still prove persistent, the cathartic should be repeated, followed by the Muriated Tinct. of Iron, from five to ten drops every two or three hours until the symptoms abate.

The above treatment, together with frequent bathing of the surface, is generally sufficient to control the disease.

## PNEUMONIA, OR INFLAMMATION OF THE LUNGS.

### SYMPTOMS.

The most prominent is a cough, with difficulty of breathing, followed by a hot skin, and increased fulness and frequency of the pulse.

In the *second* stage the cough becomes loose, and the expectoration free and copious, having a rusty appearance and being at times mixed with blood.

In the third stage, the Sputa assumes more of a purulent appearance, and the respiration is sufficiently hurried to produce more or less Dyspnœa.

The physical signs are *Crepitant Rhonchus* in the first stage, *Tubular* or *Bronchial Rhonchus* in the second stage, and when there is Hepatization in the third stage, there will be either *blowing tubular*, *sniffling metallic*, or

*Crepitant Rhonchus*, also dulness on percussion. If there is pulmonary abscess, there will be *amphoric tubular*, or *crack-metal rhonchus*. The vocal resonance will be either bronchophorous or pectoriloquous.

The varieties of pneumonia are numerous. At one time, it is marked by highly inflammatory symptoms; at another, it assumes more of a Typhoid character, and being connected with great debility, the entire phenomena of the disease resembles that of incipient Phthisis.

The prognosis of pneumonia, is altogether dependent upon the treatment. The mortality under *Allopathic* treatment being from fifteen to thirty per cent., while under a judicious *Eclectic* course, it scarcely amounts to one half of one per cent.

#### TREATMENT.

The prescriptions for simple sthenic pneumonia, are easily indicated; very few medicines being required.

The patient should be put upon the Tinct. of *Veratrum Viride*, in quantities sufficient to control the inflammatory action. In adults of full and plethoric habit, from five to ten drops may be given every half hour, until the inflammatory stage has passed.

A large cold pack may also be applied to the chest. When the inflammation has subsided, expectoration may be facilitated by giving equal parts of the Syrup of *Lobelia* and *Sanguinarin*, every two or three hours.

If there is periodicity to the disease, after the active stage has passed, *Ceracine* and *Cornine* may be given in sufficient quantities to produce an antiperiodic effect. At the same time, continue the syrup. If the disease should assume a *Typhoid* form, *Capsicum*, in connection with small doses of *Carbonate of Ammonia*, should be given. Beef tea, and small quantities of wine, may be administered, to maintain the integrity of the constitution, and

the patient's strength. If there should be bronchial symptoms, with a persistent cough, twenty or thirty drops of the Syrup of Stillingia should be given three or four times a day.

Where there is Hepatization of any portion of the lungs, small doses of Sanguinarin and Iodide of Potassium may be given. For further consideration of this subject, the reader is referred to Newton and Calkins on Thoracic diseases.

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## COLIC, SPASMODIC, OR BILIOUS COLIC.

### SYMPTOMS.

It commences with very acute pain about the region of the navel. The patient complains of great thirst, and is generally costive. He vomits a hot, bitter, and mostly a yellow bile, which at first seems to afford some relief, but is quickly followed by the same violent pain as before. As the disease advances there is an increased propensity to vomit, which becomes almost continual. The natural motion of the intestines is so far inverted as to render an evacuation almost impossible. If the patient is young and plethoric, the pulse will be hard and resisting, the surface will be covered with a cold clammy sweat during the paroxysm of pain. The vomiting will also prove very persistent.

This disease may be distinguished from inflammation of the bowels by pressure upon the abdomen, which in bilious colic always affords relief; but, on the contrary, in inflammation of the bowels it increases the pain and aggravates all the symptoms.

## CAUSES.

The causes of this disease may be various, but the effect is a spasmodic contraction of the muscles of the bowels.

## TREATMENT.

R Dioscorine..... gr. x.  
 Pulv. Camphor..... gr. iij.  
 White Sugar..... gr. xx.

Mix, divide into ten powders, and give one every fifteen minutes until the patient is relieved. After which,

R Gelsemin..... gr. ij.  
 Podophyllin..... gr. ij.  
 Capsicum..... gr. vi.  
 White Sugar..... gr. xx.

Mix, divide into five powders, and give one every hour, in a teaspoonful of Neutralizing Mixture, till it operates as a cathartic.

If the bowels resist the action of the cathartics, they should be injected with warm water, and small quantities of Lobelia Tea. Also apply a poultice to the bowels made of oil meal and mustard; say ten tablespoonfuls of oil meal to one of mustard. The patient should be kept warm and in bed. During the convalescence the diet should be of easy digestion and nutritious.

## LEAD COLIC.

## SYMPTOMS.

This disease is preceded by languor, pallor, general debility, pain in the Epigastrium, and a twisting griping pain in the region of the umbilicus.

## TREATMENT.

R Sulphuric Acid..... gutt. xxx.

Pure Water..... “ ʒi.

Give from ten to twenty drops five or six times a day for several days. During the time, a Lobelia emetic, vapor baths and mild purgatives should be given.

When the active stage of the disease has passed off, vegetable tonics, wine, porter, and a nutritious diet, are all that will be required to restore the patient to health.

## SCARLATINA.

Scarlatina is divided into three varieties, indicating the different degrees of severity of the disease, viz : Scarlatina Simplex, Scarlatina Anginosa, Scarlatina Maligna.

## SYMPTOMS.

The mild form of this disease is preceded by coldness and shivering, to which succeed febrile heat, thirst, and an accelerated pulse. About the fourth day the face swells, and irregular patches of a florid red color make their appearance on different parts of the body. In the course of four or five days, the eruption disappears, and the cuticle falls off in branny scales.

The second variety is marked by previous lassitude, dejection of mind, pain in the head, soreness, and pain in the muscles of the neck and shoulders, shivering and fever. To these succeed nausea, vomiting, difficulty of swallowing, a hurried respiration, and frequent sighing. There is a quick, weak, and sometimes a hard pulse; the skin is red, hot, and dry; the tongue is dry, and florid along the edges; and there is great thirst.

About the third day the redness about the face, neck,



and chest, becomes more intense, and the glands of the lower jaw are painful to the touch. In a few hours the redness becomes diffused over the entire body. About the fifth day the redness abates, and a brown color succeeds, the skin becomes rough, and falls off in large scales.

In the third variety, in addition to the common symptoms, there is great prostration, the surface has a dark livid appearance; there is nausea and vomiting, a quick and feeble pulse, and laborious breathing. There are also ulcerations on the tonsils and adjoining parts, covered with dark sloughs, and surrounded by a livid base. The efflorescence appears about the third day, but without relief. It assumes a dark purple appearance. Delirium, a debilitating diarrhœa, and hemorrhage, ensue, and in a great majority of cases under Allopathic treatment, death closes the scene.

#### TREATMENT.

But little treatment is necessary in simple Scarlatina. The patient should be kept in bed, and warm. The skin should be thoroughly bathed in warm lye water, and the surface anointed, after each bath, with sweet oil. A warm bread poultice should be applied to the neck, and from one to three drops of the Tinct. of Belladonna given five or six times a day.

In the Anginose form a more active treatment is indicated. A hot onion poultice should be applied to the throat, and changed every four or five hours. Every time the poultice is changed, the neck should be bathed with a liniment composed of the following ingredients :

R Oil of Stilligia .....	℥ss.
Tinct. of Capsicum .....	℥ij.
Oil Origanum .....	℥j.

Mix.

Bathe the entire body, as in the simple form, with lye water, but add to every ounce of the sweet oil one-half

ounce of pyroligneous acid, and anoint the surface as before. Add twenty grains of triturated Belladonna to half a tumbler of soft water, and give one teaspoonful every half hour. Also, give the following compound :

℞ Capsicum ..... gr. xx.  
Trit. Hydrastin ..... gr. xx.

Mix, divide into ten powders, and give one every three hours in a teaspoonful of sweet cream. These medicines should be continued until the disease abates. At the same time keep the bowels in a soluble condition by the use of warm water injections.

There is always extensive capillary congestion in the malignant form, not only in the glands of the throat, but through the entire system. To remove this capillary congestion, and bring about a reaction, is the first indication to be fulfilled in this form of the disease. For this purpose the following compound may be given :

℞ Xanthoxilin ..... gr. xx.  
Capsicum ..... gr. x.  
Hydrastin ..... gr. xx.

Mix, divide into ten powders, and give one every half hour. If practicable, put the patient in a warm bath; otherwise, apply hot packs to the bowels, back, and extremities; also, apply sinapisms to the feet and calves of the legs. If these measures fail to produce the desired effect in a few hours, hot rum toddy may be given in connection with them in sufficient quantities to produce the wished-for result. When the reaction is fully established, the patient should be placed upon Belladonna, as in other forms of the fever. Also, give the following antiperiodic :

℞ Quinine ..... gr. xx.  
Baptisin ..... gr. v.  
Hydrastin ..... gr. xxi.  
White Sugar..... gr. xxx.

Triturate, mix, divide into ten powders, and give one every two hours until all are taken. The onion poultice should be applied to the neck, as in the other forms of the disease; also, the oil and acid to the surface. The throat should be frequently bathed in a strong solution of Hydrastin and Bayberry, and the diet should be highly stimulating and nutritious.

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### PERTUSSIS, OR HOOPING COUGH.

The Hooping Cough is usually described as a disease of childhood; occurring but once in the same individual, usually at some age before puberty, and propagated by specific contagion. It mostly prevails as an epidemic; hence, a large number of individuals are attacked at about the same time. The diagnosis of Hooping Cough is, a suffocating convulsive cough, returning in regular paroxysms, and terminating in an excretion of thick, glary mucus. The cough is marked by a prolonged stridulous convulsive inspiration, attended by a peculiar tracheal rattle, and followed by short efforts of inspiration in rapid succession. The long Hooping inspiration is almost immediately repeated, and thus the paroxysm continues often for some minutes, until there is a discharge of slippery mucus, either by expectoration or vomiting, when the respiration becomes comparatively easy.

During the paroxysm, the face becomes much injected and red, the eyes suffused, and there is violent spasmodic action of all the muscles of the respiratory organs.

Hooping cough is not unfrequently combined with bronchial inflammation, and in these cases, there is more or less cough between the paroxysms.

The latent stage of the disease, is from eight to fifteen days. The cause of the spasmodic symptoms, is a closure of the glottis. When the disease is unaccompanied by

severe bronchial affections, and is not connected with Pncumonia, Trachietis, or inflammation of the brain, it is seldom attended with danger. When it is thus complicated, each disease should be treated separately.

## TREATMENT.

For the primary disease, take of oil of Skunk Cabbage berries, from one to three drops, four or five times a day.

Or,

R Pulv. Alum .....	gr. xx.
Cochineal.....	gr. x.
Syrup of Stillingia.....	℥iss.

Mix, and give one half teaspoonful three or four times a day.

Or,

R Triturated Belladonna .....	gr. xxx.
“ Sanguinarin.....	gr. xx.
“ Eupatorin.....	gr. xx.

Mix, divide into fifteen powders, and give one three times a day. Once in five or six days, give from ten to fifteen grains of Sulphate of Cinchonin, divided into six parts, and taken at intervals of three hours.

## ERYSIPELAS—ST. ANTHONY'S FIRE.

## SYMPTOMS.

Shivering, thirst, pain in the back, limbs, and head, loss of strength, restlessness, quick pulse, nausea, and sometimes vomiting. In the course of a few hours, a red spot appears upon some part of the face, which tumefies and spreads rapidly. It may confine itself to the skin, or dip deep into the adjacent areolar and cellular tissues, producing Phlegmonous Erysipelas. There is general fever, a hard and full pulse, and coated tongue. The inflamed parts become of a dark purple appearance, terminating in large and extensive abscess, or in gangrene and death.

This form of the disease often assumes a periodic character, spreading with great rapidity for a few hours, producing dangerous constitutional disturbance, then subsiding for from twelve to twenty-four hours, when it renews its attack with more than former violence.

The prognosis of Erysipelas is always favorable, under Eclectic treatment, with good constitutions.

#### TREATMENT.

The first thing to be done in the treatment of this disease, is to give a thorough cathartic of Juglandin and Menispermmin.

R Juglandin.....	gr. x.
Menispermmin .....	gr. x.
Hyociamin .....	gr. j.
White Sugar.....	gr. xxx.

Triturate, mix, divide into ten powders, and give one every hour, until it operates as a cathartic.

At the same time, the patient should take a vapor bath, and the inflamed part should be thoroughly covered with Collodion. After the operation of the cathartic, the following compound should be given :

R Cinchonin.....	gr. xx.
Quinine.....	gr. x.
Capsicum .....	gr. x.
Gelsemin.....	gr. j.

Mix, divide into eight powders, and give one every three hours, until all are taken. After which, give from five to ten drops of Muriated Tet. of Iron, every two or three hours. The diet should be nutritious, and the surface frequently sponged with warm lye water. If there is fever, Veratrum or Aconite should be given to control it. The inflamed parts should be constantly protected by repeated use of the Collodion.

## PLEURITIS.\*

## SYMPTOMS.

Acute sthenic pleuritis usually commences with a chill, soon succeeded by an acute lancinating pain in the side, cough, short and quick breathing, and fever.

Each of these will receive particular notice.

The *pain* may come on either before, at the same time, or a short time after the chill. In character it is severe, as if resulting from the thrust of an instrument, and hence it is often called a *stitch* in the side. Usually it is felt somewhere in the mammary region; but sometimes, elsewhere; sometimes near the lower margin of the chest, in which case it is, probably, the result of inflammation of that part of the pleura which covers the diaphragm. In most cases it is confined to one place; but it may be diffused over the surface of the chest, when it is sudden, very sharp and severe.

It is so nearly simulated by the nervous pains in hysteria, that it may lead to error in diagnosis. By inspiration, cough and motion, it is increased. Generally lying on the affected side, and pressure over the intercostal spaces, aggravate it. There is, a day or two after the occurrence of the most severe pain, a greater degree of soreness externally, than when early in the disease the pain is most acute. As the effusion increases, the pain decreases in consequence of the separation of the inflamed membraues by the fluid, and the prevention of friction. It is, in some cases, almost entirely wanting, being perceptible only as soreness on pressure.

The *cough* is usually short and dry, attended with but little expectoration of mucus or frothy matter. Sometimes a more copious expectoration is present. When the

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\* Newton and Calkins.



pleuritis is complicated with a degree of bronchitis, it is occasionally somewhat bloody. Severe pain often attends it, to avoid which, the patient tries to suppress the cough, and to a certain extent he succeeds by the effort. In some cases, however, this is wanting. When such is the fact, and there is at the same time no pain, the disease, by some authors, is called latent pleurisy.

The *breathing*, in most cases, is more or less difficult. The pain has the effect of preventing a full, deep inspiration. The patient is said to have a catch in his breath. In consequence of this, less air is taken into the lung when the pleura is affected, and the frequency of respiration is therefore increased, inversely, as the quantity of inspired air at each inspiration decreases. The dyspnœa, unlike the pain, increases as the disease advances. The effused fluid filling up the space usually occupied by the lung, causes this symptom.

The function of one lung is more or less suspended, and the action of the other is increased beyond its normal degree, so that the breathing of the patient becomes painful and difficult. This is more particularly the case when the effusion is both sudden and copious. When gradual, the system accustoms itself to the abnormal condition of the respiratory organs. In the latter stage it is most severe.

The *decubitus* has been considered as a pathognomonic sign of the disease. Yet there is much variance among observers in respect to this symptom. This results from the variation of the decubitus in the different stages of pleuritis. At first the patient cannot lie upon the affected side, on account of the increase of pain which that position produces. At a later stage, when the effusion separates the inflamed surfaces, the pain resulting from the position of the two portions of the pleura becomes less, and sometimes is entirely wanting. When the decubitus is on the

sound lung, the weight of the effused fluid, pressing on the mediastinum, and forcing this beyond the median line, preventing the ingress of air into the sound lung, causes pain from dyspnœa. And, consequently, at this period of the disease, the decubitus is most free from unpleasant sensations on the affected side.

The *fever* is usually considerable, and attended with the most common phenomena of febrile affections. The pulse is quick, sometimes rising to over a hundred beats in a minute, hard, full and tense. The skin is dry and hot, particularly over the chest, or the seat of the disease.

The tongue is parched, the urine scanty and high-colored, and occasionally there are cerebral symptoms.

Of the fever there are often daily remissions and exacerbations, the former coming on in the morning, the latter in the afternoon or evening. In four or five days it moderates considerably.

#### TREATMENT.

In strong and plethoric individuals, where there is a marked case of sthenic pleuritis, the stomach should be thoroughly evacuated by a Lobelia and Boneset emetic, followed by an active cathartic of Jalapin and Cream of Tartar. The affected side should be packed with cold water, and the patient caused to take from five to ten drops of the Tinct. of Veratrum Viride every half hour, until the symptoms of the disease abate. After which, the following compound should be given :

R Aselepin..... gr. xx.  
 Gelsemin..... gr. ij.  
 White Sugar..... gr. xxx.

Triturate, divide into ten powders, and give one every three hours. The patient should drink freely of some diuretic mucilage, such as marshmallow or flaxseed.

If the case be one of asthenic pleuritis, the emetic and

cathartic should be omitted, and hot packs applied to the side or sides, and the Tinct. of Aconite given to control the inflammatory action, say from one to five drops every one or two hours. Also give the following compound :

R Asclepin.....	gr. xx.
Sanguinarin.....	gr. x.
Quinine.....	gr. x.
White Sugar.....	gr. xxx.

Triturate, mix, divide into ten powders, and give one every two or three hours. If the disease is not subdued, the following compound may be given :

R Eupatorin.....	gr. xx.
Sanguinarin.....	gr. x.
Apocynin.....	gr. x.
White Sugar.....	gr. xxx.

Triturate, mix, divide into ten powders, and give one every three hours. If there should be extensive effusion,

R Syrup of Marshmallow.....	℥iij.
Iodide of Potassium.....	gr. xxx.

Mix, and give one teaspoonful four or five times a day. Where there is much debility, beef tea, wine, porter, in connection with Iron by Hydrogen, should be freely given. The surface should be thoroughly bathed, and the patient caused to remain quiet in bed. If expectoration is difficult, small doses of Lobelia may be given three or four times a day. Where there is a tendency of the disease to assume a chronic form, an irritating plaster should be placed over the seat of the disease, and allowed to remain until a free discharge ensues. The patient's strength should be supported by vegetable tonics and chalybeates.

## CHRONIC PLEURITIS.

This disease being so well described by my colleague, Prof. Calkins, in his work on thoracic diseases, I shall offer no apology for transferring it to these pages.

“Chronic Pleuritis,” says Prof. Calkins, “varies greatly, both in severity and duration. It may be *acute*, in respect to the degree of suffering and the rapidity of its progress; it may be *latent* in its character, and slow in the progress of the successive changes attending and consequent upon it. Between these extremes, the intermediate grades of morbid action are almost innumerable. The term *chronic*, then, when applied to pleuritis, seems to be more of a conventional term than in respect to other diseases. In pleuritis, the transition of the *acute* to the *chronic* state is so indefinite, and the symptoms of the recent disease sometimes have so little of an acute character, while that of a long duration occasionally manifests so much greater an intensity of irritation, that the terms, *acute* and *chronic*, would seem to be less applicable to pleuritis than to other diseases. This difficulty arises from the anatomical relations of the pleura. Being a shut sac, its acute inflammation is liable to be made chronic by the retention of inflammatory products; and the chronic is liable to be changed into the acute by the irritation of effused fluids.

“But, notwithstanding these difficulties, there seems to be no impropriety in ascribing to the disease, when highly inflammatory, and until the inflammatory symptoms seem to arrive at an acme, the term *acute*. If, after that period, lingering fever continues, evidently excited by the products of previous inflammatory action, then the term *chronic* may, with as much propriety, be applied to the disease *after*, as *acute* to the disease before the acme. In some cases, however, such an acme seems never to exist;

and to these the name *sub-acute* may with propriety be applied."

*Pathology.* — The anatomical appearances caused by chronic pleuritis, are very similar to the acute form of the disease. Of course, the influence of time would tend to produce certain modifications.

In general, we find the membranes thicker, often composed of several adherent layers, the earliest deposit being harder than those subsequently formed. The character of the liquid, too, is subject to various changes in the onward progress of the disease. It is less limpid, more prone to become turbid with flocculi of a fibrinous character. In some cases, it even appears in consistence like jelly. The quantity is greater, and consequently, the displacement of adjacent viscera is much more apparent. Here and there, adhesions are often formed between the pleura and lungs, which, in some cases, enclose little sacs of fluid.

Under the best treatment, the disease, when uncomplicated, will generally advance to a favorable termination.

But it often is the case, that the morbid products cannot be absorbed, and, consequently, they remain and pass through a series of pathological changes, sometimes ending in gangrene. Cartilaginous laminæ, bony plates, abscesses, tubercles, and hemorrhagic effusions, are among the successive steps in the progress of chronic pleuritis.

"Sometimes," says Dr. Wood, "the walls of the chest are forced inward contrary to their elasticity, so that, when a puncture is made from without, the air rushes in to supply the vacuity produced by their resilience. In some cases, secretion goes on as rapidly as absorption, and the liquid accumulation remains for a great length of time. This is especially the case in empyema, or collection of pus in the cavity of the pleura. Sometimes the pus makes its way into the substance of the lung, and a fistulous commu-

nication is formed between the bronchi and the pleural cavity through which pus is discharged and air admitted.

“ In other instances the liquid takes an external direction, and by means of ulceration escapes into the cellular tissue without the chest, and, travelling occasionally for a considerable distance, produces sub-cutaneous abscesses in various parts of the chest, which ultimately open, unless life is previously worn out. In thus travelling, the pus has been known to occasion caries of the ribs and vertebræ. Sometimes the purulent collection is found to be connected with a tuberculous vomica.”

It is sometimes difficult to determine the causes which change ordinary acute pleuritis into the chronic form. Evidently, in many cases, too much depletion, the too frequent use of mercury, and other articles making up the antiphlogistic regimen, tend to the production of chronic pleuritis. Often, when a case seems to be cured by such means, the impoverished state of the blood, caused by the use of the lancet, thus rendering the system more liable to be affected by low grades of inflammation, developes a new and unwelcome train of symptoms, admonishing the physician that the supposed cure was, after all, delusive.

Dr. Gallup, defining chronic rheumatism, says that it is acute rheumatism half cured. So, it may be said with equal propriety, that chronic pleuritis is the acute variety half cured.

*Diagnosis.* — The general inflammatory symptoms of acute pleuritis may gradually disappear; but, unless the morbid products of the diseased action are removed from the pleural sac, the fever will recur, and change its type, now very closely resembling hectic, now becoming identical with it. This recurring fever is one of the most troublesome and alarming symptoms of chronic pleuritis; for in other respects the patient does not suffer in proportion to the extent or duration of the effusion.



Dr. Gerhard observes: "I once saw a patient who had performed the full duties of a sailor, going aloft with an enormous pleuritic effusion. When he returned from sea, it amounted to two or three gallons. This is an exceptional case; but it is very common to find patients who can perform many laborious occupations without much inconvenience. This is generally the case if the dyspnœa is not severe; and we find that some patients complain of little difficulty of breathing, with an extent of pectoral disease, which will give rise to great distress in other individuals. The symptoms which so frequently characterize chronic organic diseases, are extremely variable in this variety of pleurisy. These are emaciation, loss of the firmness of the muscles, harshness and dryness of the skin, and slight œdema of the legs. Sometimes they are nearly as well marked as in tuberculous disease of the lungs;—in other cases they are very slight; hence they constitute a diagnostic sign of the disease; and if we find them well characterized, we will do right to regard the case as one probably complicated with tubercles. If our impression be erroneous, we will soon rectify it as the symptoms will gradually become more decided in the latter case, and slowly disappear if the pleurisy be followed by recovery."

The diagnosis of chronic pleuritis, without the aid of the physical signs, is often very difficult.\* Its general symptoms simulate those of phthisis. But the physical signs are far more reliable. When these are present, there is no difficulty in ascertaining the true character of the disease. If it is complicated with tuberculous deposition, the case should be regarded with much anxiety: for the diagnosis then becomes much more obscure, and the prognosis more "unfavorable."

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\* See EMPYEMA.

## PROGNOSIS.

The prognosis of this disease depends much upon the extent of the effusion, the condition of the constitution, and the tendency to hereditary disease. Also, upon the skill with which the disease is treated. If the integrity of the constitution is not too much impaired, and there is not a marked tuberculous tendency, under a judicious treatment our prognosis will be favorable.

## TREATMENT.

The treatment of this disease depends upon the constitution of the patient. If there is still an inflammatory process going on, Aconite, in connection with Veratrum and Gelsemin, should be used until it is controlled. As for instance, if the skin is hot and dry, the pulse quick, the urine scanty, with more or less dyspnœa, and alternate pyrexia, the following compound may be given :

R Gelsemin.....	gr. j.
Quinine.....	gr. xx.
Asclepin.....	gr. x
White Sugar .....	gr. xxx.

Mix, triturate, divide into ten powders, and give one every two or three hours until all are taken.

If the symptoms should not subside under this prescription, the irritating plaster should be applied over the entire surface of the affected side, and a thorough spirit-sweat be given ; after which, the following mixture :

R Syrup of Tolu.....	℥ij.
“ Sanguinarin.....	℥ij.
“ Iodide of Iron.....	℥ij.

Mix, dose one teaspoonful every three hours.

If there are febrile symptoms, from one to three drops of the Tct. of Aconite should be given every three hours, in connection with the above mixture.

The diet should be nutritious and stimulating, and if there is much debility, a small quantity of Porter or Scotch Ale should be taken four or five times a day. If there is much effusion, an attempt should be made to produce absorption by the following mixture :

R Syrup of Iodide of Potassium .....	℥j.
“ Apocynin.....	℥ij.
“ Stillingia.....	℥iij.

Mix, dose one teaspoonful three or four times a day. At the same time drink freely three times a day of a tea made of equal parts of Eupatorium, Purpureum and Pipsissewa. If the strength of the patient will bear it, one eighth of a grain of Phytolaccin and five grains of Cream of Tartar should be given.

The irritating plaster should not be removed until a free discharge ensues, which should be maintained by the occasional use of the vegetable caustic, and a constant application of slippery elm poultice. If the absorbents should prove too debilitating to the patient, they should be discontinued for a few days, and the following tonic be given :

R Hydrastin.....	gr. x.
Phosphate of Iron.....	gr. xx.
Prunin .....	gr. x.
White Sugar.....	gr. xxx.

Mix, triturate, and divide into ten powders, and give one every three hours.

If there are periodical symptoms in connection with debility, and the above prescription should fail to give relief, five drops of the muriated Tet. of Iron, and two grains of Quinine, should be given four times a day. Also a liberal supply of beef tea, prepared as directed in treatment of Typhoid Fever. After recruiting the patient's strength for some days, the diuretics and absorbents should again be resumed, and persisted in for the purpose of pro-

ducing absorption of the effused fluid. If the above treatment should prove unsuccessful, and the Empyema likely to prove disastrous to the patient, the operation of Paracentesis Thoracis should be performed as directed under the head of Empyema.

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## EMPYEMA

Is a collection of fluid in some part of the body, particularly in that of the pleura. It consists mostly of a purulent, sero-purulent or serous fluid, within the cavity of the pleura, and is dependent upon chronic pleurisy. When inflammation attacks a serous or diaphanous membrane, it loses its transparency, becoming dull, and in some instances dry. These changes may be observed not only in the Pleura, Pericardium and Peritoneum, but in the arachnoid membrane, in which it is distinct when other traces of inflammation cannot be recognized. At the same time, red vessels appear in isolated spots over a considerable extent. They are arborescent, and consist of minute red lines radiating from star-like points. These vessels, though placed in the substance of the membrane, gradually approach the surface as the process advances. They are not newly developed, but are the colorless capillaries of the sound part, injected with red blood. After existing for a longer or shorter time, these changes are succeeded by others, which are regarded as their effects. The first and most important of these is, the formation of a new fluid at the free and inadherent surface of the membrane.

The nature of the fluid varies according to the stage of the inflammation. In the commencement of the inflammation, the capillaries begin to deposit a semi-transparent fluid, in small quantities, which becomes more abundant as the disease advances. It is straw-colored, of a homoge-

neous character, and, as it is effused, undergoes spontaneous coagulation. This consists in part of the fluid attaining a solid form like a jelly in layers of variable thickness, with a honey-comb surface, and thready filaments coalescing and quite consistent. A small quantity of a thin fluid is found in the interstices of these filaments, oozing from the surface of the coagulated part, and lodging in the most dependent part of the cavity. This process may continue until a large amount of fluid is accumulated, or the entire product of the inflamed surface may be deficient in albumen, producing an extensive accumulation of sero-purulent fluid.

Baillie and other observers state "that this fluid has been supposed to be derived immediately from the blood; but that this is not correct, as it is the serous or watery portion of the morbid exudations, from the surface and interstices of which it may be seen trickling.

The red or brown tint is derived from the blood issuing from the newly-formed capillaries. Shreds of lymph are found floating in it when the accumulation occurs in the pleural cavity. The sero-purulent is often connected with albuminous fluid, from which it is separated during the process of coagulation. It consists mostly of serous fluid, with minute granules of albuminous matter, which precipitate to the bottom, leaving a chalk-like liquid, which constitutes the majority of the effused fluid in the cavity. In this fluid may be seen small particles of lymph afloat. The puriform fluid of serous membranes consists of serous fluid with small granules of opaque matter, not coagulable, and is considered as an abortive effort to produce albuminous exudation. The puriform deposit mostly occurs in the peritoneum. It is a white or cream-colored opaque fluid. It occurs mostly in chronic pleurisy and peritonitis. It has been supposed that genuine purulent matter was not formed unless there had been previous ulceration of the part. But

the researches of Baillie, Black, Hunter, and Millin, have amply shown that purulent fluid may either be secreted by the inflamed membrane, or from the organized layers of lymph, or from both. In the first, the fluid is secreted directly from the capillaries of the inflamed membrane. In the second, it is derived from the organized false membranes which take on the suppurative action. In the third, both sets of vessels are concerned.

#### SYMPTOMS.

The patient either lies on his back diagonally, or on the diseased side with the head slightly bent forward. The voice is weak, and there is a persistent cough, with more or less expectoration of mucus or muco-purulent matter. The face is buffy, and semi-transparent; the lips tumid and livid. The pulse is habitually quick and small, and febrile attacks are frequent, and often connected with chills. In recent empyema, the diagnosis may be confounded with that of pneumonic solidification. But in empyema, vocal fremitus disappears. In hepatization of the lung, it is maintained, and frequently above the average of health.

In empyema there is no crepitant rhonchus, nor is there true tubular sniffling, metallic respiration; vocal resonance is well or weakly bronchophonic. There is dulness on percussion over the entire pleural sac, and not unfrequently effusion becomes so extensive as to force the lung towards the mediastinum and spine, compressing it in so small a bulk that it appears to be destroyed. Its vessels are crushed together; its bronchial tubes and vessels closed, and the whole organ is rendered unfit for respiration. Unless much care is taken in diagnosis, this condition will be mistaken for atrophy of the lungs. In other cases the heart and mediastinum are carried over to the right side, and the heart will be found beating on the right side of the sternum between the third and fourth ribs.



A case of this kind occurred in my practice, where the effusion, following latent pleuritis, was so extensive that it not only carried the lung forward and backward towards the mediastinum, and against the spine, compressing it so completely, as to prevent the ingress of air; but, the heart and mediastinum were carried forward, and beneath the sternum, so as to encroach materially upon the right lung. In this case, the symptoms at first were those of latent pleuritis, followed by a persistent cough, with expectoration of muco-purulent fluid, great dyspnœa, and inability to lie on the affected side. There was great dullness on percussion, which extended an inch over the right of the sternum.

The only physical signs which were diagnostic of the disease, were the absence of respiratory murmur on the left side, and the deviation of the area of dullness upon percussion; on changing the position of the patient, the dyspnœa and the increased diameter of the left half of the chest, which was three and one-half inches greater than the right. In this case, absorbents, diuretics, and tonics, only gave temporary relief. And in the course of two and one half years, an opening made its appearance in the base of the pleura and diaphragm, where it had previously become attached, and the fluid made its escape into the cavity of the abdomen, producing peritonitis and death. The patient refused to submit to the operation of Paracentesis. Dr. Hughes reports a case of thoracic disease, where the patient became much debilitated, with quick pulse, dyspnœa, and every physical sign of effusion into the right pleura. There was no bulging of the intercostal space; but a flat fluctuating tumor was observed, which dilated upon coughing. A small trochar was introduced, and twenty-four ounces of turbid serum were drawn off. Iodide of Potassium and Sarsaparilla were taken, which afforded partial relief,—yet, he states that he

operated again, in two weeks, and drew off thirty-six ounces more. No inconvenience followed, and the patient appeared much improved. Some two months afterward, the tapping was again repeated, and twelve ounces of fluid were drawn off. In two months more his health appeared good; but there seeming to be an increase of fluid, tapping was again performed, and thirty-six ounces of fluid evacuated. He was tapped again on the eighteenth and twenty-sixth of November successively, which was also again performed on the twenty-first of December. Finding that repetition of the operation must still be continued, the patient learned to perform it himself, and actually did so twice. The prognosis was subsequently favorable, and after fifteen tapplings his restoration was complete.

#### TREATMENT.

The first efforts of the physician should be to produce absorption, which can be accomplished, in most cases, where the walls of the sac are in a normal condition. But, unfortunately, in many instances the albuminous exudation forms a complete false membrane to the internal walls of the sac, which entirely precludes the action of the absorbents upon the effused fluid. In this event but little can be expected from the use of remedies, until the fluid is evacuated by means of the trochar.

The operation of Paracentesis Thoracis is performed in this manner. The patient should be propped up in bed, and inclined a little to the sound side, so as to separate the ribs, as much as possible, on the diseased side. The skin is to be divided to the extent of one and a half inches, in a direction parallel with the superior edge of the lower rib, on the intercostal space that is selected for the puncture. After dividing the superficial fascia, and any portion of a muscle of the chest that may intervene, as well as the external and internal intercostal muscles, the pleura will

be seen to bulge into the wound. After being distinctly felt by the finger, so as to establish the fact that only fluid is behind it, a trochar, armed with a canula, should be introduced through the sac; the trochar should be withdrawn, and the canula allowed to remain until the fluid is discharged. Or the pleura may be punctured by means of a sharp-pointed bistoury. On making an incision through the integument, the skin should be drawn up from an inch to an inch and a half above the intercostal space intended for the internal opening, so that after the evacuation of fluid, the integument, by passing down over the internal wound, may exclude the air from the pleural cavity, which is one of the most essential conditions to be observed in this operation.

If there is a probability that the fluid may be absorbed, an attempt should be made, by the use of the following :

R Corydalin.....	gr. x.
Phytolaccin.....	gr. ij.
Iodide of Potassium .....	gr. xxx.
Syrup of Marshmallow.....	℥ij.

Triturate, and mix well together; give from one half to one dram three times a day.

At the same time apply the irritating plaster to the affected side, until a free discharge ensues.

The strength of the patient should be maintained by the use of porter, wine, beef tea, and such articles of food as are easy of digestion. When the above remedy has been used for two or three weeks, a change may be made to the following :

R Quinine.....	gr. xx.
Digitalin.....	gr. ij.
Bitartrate of Potassa.....	℥ij.
Syrup of Stillingia and Syrup of Iodide of Iron .....	aa ℥ij.

Mix, and give one half teaspoonful three times a day.

The skin should be thoroughly bathed in lye water two or three times a week, and every effort should be made to preserve the patient's strength.

If, after the above treatment, and such other remedies as seem to be indicated, the patient is not materially relieved, tapping should be resorted to at once. In performing this operation, much care is required to prevent the ingress of air into the cavity of the chest. Otherwise empyema would be removed only by substituting emphysema. After the operation, a general diuretic, alterative, and tonic treatment should be pursued, for the purpose of preventing a re-accumulation of the fluid. If empyema is connected with organic disease of the lungs, or general tuberculosis, much relief may be obtained from the operation of Paracentesis. Although it may not effect a cure, still it will very materially assist your constitutional treatment.

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### PHTHISIS.\*

"The essential character of pulmonary consumption consists in the deposit of tubercles in the tissues of the lungs. This deposit may begin with local mischief, or may evidently be the sequel of constitutional disorder. In both varieties the general disease is present, although it may exist in a latent form. Of this the formation of tuberculous matter is a proof. It is evident, however, that the presence of tubercles does not alone constitute the disease. One step back, along the chain of causation, is a morbid condition, of which tubercles are but the effect. This morbid condition, whatever is its nature, may exist a long time before the formation of tubercle begins.

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\* Newton and Calkins.

That a change takes place in the blood, which causes or precedes the deposit and development of tubercles, is well established. The corpuscles are diminished, and the albumen increased in quantity. The fibrin is below, rather than above the normal amount, and, it may be inferred, that it is also defective in its nature. Elsner, and some other analysts, have found the fatty principles diminished.

Dr. Fricke's analyses indicate an increase above the standard of health, in the lime, and a decrease in the phosphates; while l'Heritier states, that in serofula the earthy salts are diminished. Hence, the blood may be stated generally to be degraded in quality, and endowed with a low degree of vitality. Whether these be the real changes in the blood is not certainly determined. Physiologists and pathologists are not fully agreed as to the nature of all the changes which the blood undergoes in the scrofulous diathesis. Andral showed that in phthisis pulmonalis, the fibrin was augmented. The probability is, that this increase of fibrin is most frequent, when inter-current pneumonitis is associated with tubercular disease. To attain to accuracy in this matter is very difficult, on account of the variable state of the blood, arising from exercise, diet, time of the day, and other changing circumstances.

The conclusions to which we may logically come, are the following: 1. That from the earliest invasion, the sum of the vital force is either below the standard of health, or it is relatively low as respects the structure and organization of the individual. 2. That this diminution in the sum of the vital force, is dependent on the imperfect blastema of the diseased blood, causing perversion of the tissues. 3. That as tuberculosis advances, the sum of the vital force for the whole system, continues to diminish. 4. That the nutritive powers of the blood, as respects the nervous tissue, frequently remains undiminished; this

tissue not requiring for its nutrition, compound principles identical with it to be introduced into the blood with the food, and having a nutrition peculiar to itself, differing from that of the cellular and muscular structures. The fatal disease tuberculosis may be traced to a primary error or defect in the blood-making process. Vitiating air, or air stagnating or insufficiently renewed within the chest; and probably other anti-hygienic influences, as a vitiated or defective diet, acting singly, coetaneously, or as respects each other, ancillary, produces slowly under ordinary circumstances, but occasionally with great rapidity, some unknown change in a portion of the proteiniform principle of recently formed liquor sanguinis; this change may consist in hyper-oxydation; but whether so or not, it deteriorates its properties, rendering it, more or less, altogether unsuitable as a material for organization.

At the same time, the oily principle of nutrition circulating with a diminished number of real corpuscles, is in part converted into a fatty substance of a lower degree of oxydation. These modified proteiniform and oleaginous principles are exuded in the blastema, and are either employed in the assimilating processes, deranging the nutrition of the organic structures, and giving the tuberculous or serofulous character to various pathological processes; or, in the more advanced stages of the morbid process, they are deposited in particular tissues, and accumulate generally in the form of tubercle, but sometimes both as tubercle and morbid fat, substances for the most part incapable of organization.

In the present state of pathological science, confining ourselves to its legitimate object, the study of *phenomena*, apart from any metaphysical views of final causes relative to the *powers* of nature, this appears to be the most accurate definition that can be given of the most essential nature of tuberculosis.—(DR. ANCELL.)



But in what manner does the deposit take place? We possess sufficient evidence that it is derived from the blood; that it transudes from the capillary vessels of the part in which we find it; and that after being deposited, it is liable to undergo certain further changes. On the examination of incipient tubercular deposit, we may always note that there is congestion in the tissues immediately surrounding it. In the pia mater of the sylvian fissure, we see an increased redness, in which a few vessels are more prominent than usual; in the pulmonary parenchyma we may especially, by the use of the microscope, discover the engorgement of the interlobular capillaries investing the air-vesicle into which the tubercle is being secreted. In the mucous membrane of the intestines we see the exquisite arborescent arrangement of the congested vessels, tending from the mesenteric attachment to the point where we observe the deposit, shining through the mucous surface from the submucous tissue, where it has collected. The first elimination of the morbid products acts like a magnetic point of attraction, and generally serves as a centre around which the deposit progressively enlarges by eccentric deposition.

Tubercles exist in various forms; in fine points, grey and yellow granulations, miliary tubercles, and grey or yellow tubercular masses, softened and cretaceous. Each of these modifications requires a more particular notice.

1. *Pulmonary Granulations — Grey Granulations — Miliary Tubercles.*—These various names have been used by authors to describe round, small, translucent, shining, homogeneous bodies, often not larger than a millet-seed, but varying from this to the size of a pea, which appears to be the primitive state of tubercles. Usually they are of a greyish, but often they are of a reddish or of a brownish color, and in some cases they are nearly colorless. Sometimes they are isolated, sometimes clustered in small

bunches, or in aggregate masses. In the latter state they are most often found in the upper portion of the lung. But in the isolated form they are scattered sometimes thickly through the whole or greater portion of the pulmonary tissue; not unfrequently they are found situated beneath the pleura, producing an irregularity perceptible to the touch. This is more often the case in children than adults.

2. *Grey Tubercular Infiltration*.—Laennec defines this as the same kind of matter which forms the granules above described, deposited in the cellular tissue of the lungs in irregular masses, sometimes one, two, or even three inches in cubic dimensions without definite boundaries, or limited only by the extent of the lobules. It is hard, homogeneous, translucent, and of a greyish color, sometimes darkened by the black matter of the lungs, portions of which become enveloped in the masses as they are formed. In some cases no traces of pulmonary tissue can be detected in the masses; in others they present remains of blood-vessels, bronchial tubes, and cellular membrane; and occasionally they are partially penetrated by the air in respiration.

3. *Crude Tubercle and Yellow Tuberculous Infiltration*.—The grey translucent matter constituting the first two deposits above noticed, appears to undergo a gradual conversion into what has usually been considered the proper tuberculous substance. In the miliary granulations, the transformation commences in a small yellowish, white spot, which most commonly appears at or near the centre, and gradually enlarges until the whole granule assumes that character.

In this altered state, the little bodies are now called *crude tubercles*. In the aggregated granules, the change commences at several points, each probably answering to a distinct granule, and considerable masses of yellow opaque

matter result from the extension and ultimate coalescence of these central spots.

The same transformation takes place in the infiltrated translucent matter, beginning in like manner with isolated opaque spots, and spreading until it involves the whole deposit, which, when thus altered, receives the name of *yellow tuberculous infiltration*. This may be distinguished from the erude tubercle by an irregular and angular, instead of roundish form, and by a less regular line of division between it and the pulmonary tissue. There is no doubt that both the erude tubercle and yellow infiltration are often originally deposited in this state, without the preliminary formation of the translucent matter.

The next important change in tubercle is that of softening. This, in many authors, is said to begin in the centre, and to gradually advance to the circumference. Concerning the truth of this, there is, however, some doubt. The reasons as given by Mr. Carswell upon which such a doubt is based, are the following:—Tubercular matter, according to his theory, is contained in the air-cells and bronchi. If, therefore, this morbid product is confined to the surface of either, or has accumulated to such a degree as to leave only a limited central portion of their cavities unoccupied, it is obvious that when they are divided transversely, the following appearances will be observed:—1. A bronchial tube will resemble a tubercle having a central depression, or soft central point, in consequence of the centre of the bronchus not being, or never having been occupied by the tuberculous matter, and of its containing at the same time a small quantity of mucus or other secreted fluids:—2. The air-cells will exhibit a number of similar appearances, or rings of tuberculous matter joined together, and containing in their centres a quantity of the same kind of fluids. When the bronchi or air-cells are completely filled with tuberculous matter, no such appearances as those we have

just described are observed, and hence the reason why tubercle, in such circumstances, has been said to be still in a state of crudity, or in that state which is believed to precede the softening process.

As the softening process advances, the whole tubercle becomes converted into a soft, pultaceous, yellowish mass, in appearance resembling pus. The infiltrated mass, likewise, undergoes a similar change. Sometimes the entire tuberculous deposit seems throughout its whole mass, to become suddenly softened, and, in this manner, large portions of the lung are quickly destroyed. The pressure of the growing tubercle upon the circumjacent lung, at first makes it less vascular; but reaction at length takes place, inflammation succeeds, and congestion, ulceration and suppuration follow. In some cases the tubercular disease passes through its various stages without giving rise to marked inflammation. In the majority of cases, however, the bronchi, air-cells and cellular tissue, are more or less affected by the inflammatory process. The succeeding ulceration gives rise to the formation of cavities. Frequently one large vomica is made up of several smaller ones, which, in the parietes of the large cavity, make excavations of irregular shape, now winding and now crossed by bands of tissue. The size of the cavity varies from that of a pea to that of an orange. Its contents consist of a mixture of pus and bloody matter, and portions of pulmonary tissue. Sometimes they are inodorous, sometimes fetid. In children the vomicæ are less common than in adults. As the disease advances, a false membrane begins to form around the decaying tubercle, at first thin and delicate, and in appearance resembling mucous membrane. Large abscesses are sometimes seen, between which and the bronchi there is no communication.

*Cicatrization of Tuberculous Cavities.* — That this is not a very rare occurrence, Laennec proved in his early

researches into the termination of tuberculous disease. Indeed, from this we learn that phthisis sometimes terminates favorably. This happens when the deposit is limited in extent.

But, sometimes at the apex of the lung, we find an old adhesion, sometimes a crust of fibro-cartilaginous deposit, or even a fibrous band passing from the lung to the ribs. Adjacent to this pathological change, the lung is puckered and drawn inward. To the touch, it feels firm and consolidated; to the eye, it appears dark, from an abundant deposit of black pigment. On making an incision, we find a cavity lined by grey fibrous membrane, semi-transparent, or thick, whitish, and fibro-cartilaginous, or soft and pliable, like the mucous membrane.

[In the winter of 1855, my colleague, Prof. Hollemback, and myself, made a post-mortem examination of a female, who had been laboring under phthisis for the last twelve years. In her case the right lung had been entirely destroyed, save a very small portion, just below bifurcation of the bronchi, which was completely injected with tuberculous matter. This portion was about the size of a hen's egg, and completely impervious to air. A fibrous band passed from this bunch to the lower portion of the pulmonary cavity, and was attached to the pleura costalis. The cavity was filled with sero-purulent fluid; but the woman had enjoyed a respite from the urgent symptoms of the disease, save periodical attacks of dyspnœa, in one of which she died.—*The Author.*]

Adhesions are almost always present in phthisis. In 112 cases examined by Louis, there was only one in which no adhesion was found. To some extent, their location corresponds to that of tubercles. In rare cases, the entire surface of the lung is bound down to the costal pleura, and to that of the diaphragm. These have the effect to prevent pneumothorax. The trachea and bronchial tubes

often are the seat of extensive lesion. Those are most often affected which form a way of exit to vomicae. Their posterior, more often than their anterior, internal surfaces are affected. The larynx and epiglottis, are sometimes the location of tuberculous disease. Among other lesions attending phthisis, are partial emphysema of the lung, dilatation of the bronchi, and enlargement of the bronchial glands. This latter effect is most common in children.

*Appearances in other parts of the body.* — The origin of tubercles being in the blood, their distribution throughout the entire system is a necessary result. But according to Louis, this general law is established, that when tuberculous deposit exists in other organs, it always exists in the lungs. The converse of this, is far from being true; and the law itself is occasionally subject to exceptions, the occurrence of which is most frequent in children. Without the lungs, the tuberculous depositions are most often composed of the yellow opaque tubercle. Grey granulations or miliary tubercles, have also been observed in various parts of the body. From some form of tubercle, scarcely an organ of the body is wholly exempt. They are found in the liver, intestines, mesentery, prostate gland, testicles, heart, bladder, uterus, spleen, and kidneys, and in the membranes and substances of the brain. It was the conclusion of Louis, that, of all the cases of tubercles, occurring in persons over the age of fifteen years, one-third had them in the small intestines, one fourth in the mesenteric glands, one-ninth in the large intestines, one-tenth in the cervical glands, one-twelfth in the lumbar glands, and one-fourteenth in the spleen. The stomach becomes larger than natural, more thin, and is subject to chronic inflammation of its mucous surface. The glands of Peyer — those near the cæcum — become the seat of tubercles. The mucous glands of the small intestines, sometimes ulcerate, causing perforation, and the admission



of the fæcal secretions into the cavities of the peritoneum. A similar diseased state of the large intestines sometimes occurs. The mesenteric glands are very much enlarged. In the brain, tubercular deposition gives rise to hydrocephalus.

#### GENERAL SYMPTOMS AND COURSE OF PHTHISIS.

Since the discovery of the physical signs by Laennec, the tendency of some minds has been to disregard the general symptoms in the formation of a diagnosis. Among such, an unnecessary delay is often caused in the application of remedial agents; for the general symptoms very frequently are the first indications of approaching disease. A diagnosis should not then be wholly dependent upon the physical signs in the first stage; for these are seldom manifest, until the disease has so far progressed as to make a prognosis unfavorable. Certain general symptoms are grouped together, and said to be indicative of the *scrofulous diathesis*, or *tuberculous cachexia*. What this condition of the system is, or what its influence, in the development of phthisis, it may be difficult to accurately ascertain; and yet the description of some of its more important symptoms, may be of utility in detecting that first pathological change in which phthisis begins.

Among the more important symptoms are, a pale, pasty appearance of the countenance, large upper lip and alæ-nasi. In persons of dark complexion, the skin is sallow; in those of fair complexion it is unnaturally white, resembling blanched wax rather than a healthy countenance. The veins are large and conspicuous, the pupils of the eyes are large, eyelashes long, with a fair, florid complexion. In persons of a bilious temperament the skin is coarse, its color dingy. The form of the body is often destitute of symmetry. The trunk is small, the head large, abdomen tumid, limbs unshapely, the growth of the body is irregular,

the functions of nutrition are feeble and deranged. The intellect is often very active; there is great sensibility to impressions and acuteness of mind.

*Stages.* — For convenience in description, phthisis has been divided into three stages. Between these no line of demarkation is accurately drawn. The first stage begins with the onset of the disease, and ends when the softening of the tubercle has commenced.

*General Symptoms.* — The pulse is accelerated, especially after eating, towards evening, or by slight exercise. A burning sensation is felt in the palms of the hands and soles of the feet. Towards evening a slight chilliness comes on; towards morning, perspiration supervenes. The febrile paroxysm is sometimes very slight, scarcely attracting notice; sometimes severe, causing unpleasant sensations, and exciting alarm. Sleep ceases to refresh, food to give strength and vigor. The aspect of the patient changes; the countenance is pale, expressive of languor, or red with the hectic flush. The skin is less elastic; the muscles less firm; menstruation is tardy or entirely wanting; emaciation becomes evident. If these symptoms have appeared in the spring-time, by the use of proper remedies, and regimen, they are almost entirely removed, until the returning autumn and winter bring them on with increasing severity. Occasionally they seem to arise from bronchitis, pleuritis, pneumonitis, or some febrile disease. When they succeed to measles or scarlet fever, they frequently progress with unbounded rapidity. The *rational symptoms* are subject to much variation. In most cases, however, a short, dry cough is one of the first symptoms that excites alarm. Often very slight, a mere hacking in the morning, it steadily increases, and at length is accompanied with a frothy expectoration of transparent mucus, and afterwards of yellow, opaque matter. Slight dyspnoea occurs when the patient exercises. About the sides and

shoulders there are fugitive pains. Slight hemorrhage from the lungs occurs; at times it may be somewhat copious, but often in small quantity. As the disease progresses, the cough increases, preventing sleep, and sometimes occurring in paroxysms. The expectoration is correspondingly increased, becoming thicker, more yellowish, or greenish and purulent. The other symptoms usually advance with equal pace. Sometimes the disease is very insidious in its approach. Suddenly, without any premonition, a violent attack of hæmoptysis occurs, immediately succeeded by all the appearances of confirmed phthisis. These rational symptoms are intimately connected with the tubercular deposition. The tubercles are in a state of erudity. Softening has not yet commenced. They are in the form of small, roundish, homogeneous bodies, collected in clusters, or more widely disseminated through the lungs in the form of miliary tubercles. Sometimes they are more or less firm, of a greyish color, or translucent.

*Physical Signs.* — In the nascent state of phthisis, we cannot derive positive information from physical exploration. In order to produce abnormal sounds on percussion and auscultation, the deposit of tubercles must be considerable; or there must be in some one part of the lungs, be it ever so limited, a deposit sufficiently great to interfere with the pulmonary functions.

If the tubercles are small and scattered, the physical signs will not be so sure to detect the morbid changes. If, on the contrary, they are large and clustered together, abnormal sounds are more readily developed; so that it is evident that the physical signs cannot determine the accurate amount of tuberculous deposition; since the arrangement of tubercles, as well as their number, has a modifying influence. Shall we therefore conclude that the physical signs are of no practical utility? As well might we deny the usefulness of the telescope, because it does not

reveal all the minute phenomena of the heavens. Because no one of the physical signs is absolutely pathognomic, we should not conclude that their evidence, added to that afforded by the general symptoms, is not of great value. These signs, found at the point most subject to tubercular disease, the comparative rarity of any other lesions capable of producing the same physical phenomena, enable us to arrive at a degree of probability which is almost equivalent to certainty. The existence of the twofold evidence given by the general symptoms and the physical signs, makes the diagnosis far more sure than it could be when founded only on one class of symptoms.

Inspection is often a valuable means of diagnosis. Prominence of the clavicles, contraction of the intercostal spaces, a flatness of the chest in front, an unequal height of the shoulders, a depression of the ribs,—all these, when present in a tuberculous patient, indicate the presence of phthisis.

Percussion is usually somewhat dull under the clavicles. An inequality in its degree on opposite sides of the chest, and at points equally distant from the median line, adds much more significance to this physical sign, and especially if the dulness is greater on the left side. In emphysema and pneumo-thorax a similar inequality of sound may exist.

In these instances the diseased side is most sonorous; but the respiration is most feeble where the resonance is greatest, a circumstance which distinguishes this condition from phthisis. An emphysematous condition of the lung occurring adjacent to the location of solidification from tubercles, may cause the percussion to remain nearly normal. Were this coincidence common, it would certainly diminish the value of percussion in diagnosis. But it is of very rare occurrence. The signs derived from percussion should be sought about the clavicular and acromial regions.

Obscurity of resonance being detected beneath one or both clavicles, or at any point of the chest near to the apices of the lungs, what conclusion should be formed as to the nature of the disease? To this question Chomel replies:—"Obscurity of sound, and feeble respiration under one of the clavicles, give strong reason to suppose the existence of tubercles, for partial effusions take place in the immense majority of cases at the inferior and posterior parts of the chest, and it is almost never that chronic pneumonia is primitive and without the presence of tubercles.

In the early stage, the slightest difference of note or pitch on opposite sides of the chest, if confined to the clavicular and aeromial regions, should excite suspicion. Although the dulness may be confined to a small locality over the top of the shoulders and the scapular muscles, yet if it be clearly perceptible it is a very sure indication of the existence of phthisis.

*Auscultation*, in the first stage, reveals a feebleness of respiratory murmur in the sub-clavicular region. This occurs where percussion is dull, and at the same time the resonance of the voice is greater than normal. While in one part of the lung these signs are heard, in another the respiration is *blowing*. A slight difference of sound in relative situations on both sides, does not necessarily indicate phthisis. The anatomical relations of the lungs have a modifying effect. A sound in the right lung of a phthisical patient should not be considered as indicative of tubercles, unless it is decidedly blowing. But if the respiration is more blowing at the apex of the left than at that of the right lung, there can be but little doubt that tuberculous disease is present. With the advance of the disease, the respiration becomes somewhat rough, or even bronchial, with a prolongation of the expiratory sound, which is one of the most striking characteristics of tuber

culous deposition. Inspiration is at times somewhat jerking. The cardiac pulsations are more audible than usual. Bronchial respiration and bronchophony are heard out of their natural locality, thus becoming indications of pulmonary lesions.

*Second Stage* of phthisis may be considered as beginning with the softening of tubercles, and terminating when cavities are fully formed, and all the physical effects arising from them fully developed. In other words, it is the forming stage of vomicae.

*General Symptoms.* — Of the general symptoms collectively, I remark that they are more severe. The evening chills are more constant and troublesome; the succeeding heat is more intense and more general, the morning sweats more regular and copious. Hectic is more constant, and, to use the words of another, “hangs out upon the cheek the red flag of death;” the pulse is more frequent, the respiration quick and laborious, even when the patient is at rest. Languor and weakness increase, emaciation is rapid, the muscles are soft and flabby, and the patient can no longer endure his wonted amount of physical or mental exertion. Paleness of the countenance frequently remains through the early part of the day. Sometimes there is a greater tendency to chills shown by an increased sensibility to cold, and the evening exacerbation brings on an increased heat of the palms of the hands and the soles of the feet. The countenance, under the influence of the morbid excitement, is for a while more animated, the eye brightens, and the red blush of hectic gives to the features new beauty and loveliness. When speaking, the lips of the patient slightly quiver, there is breathlessness which interrupts him in the middle of a sentence. Sleep is more disturbed. Not unfrequently the mind, even in this stage of the disease, is buoyant and hopeful. The least or most temporary amendment in his symptoms, or the delusive



promises and boasts of quacks, inspire him with the joy of hope. *The Physical Signs* in this stage are more marked. As the disease advances, the tubercles soften and become diluted with a morbid secretion from the pulmonary tissues. Particles of curdy or cheesy matter pass from their locality, in the parenchyma of the lungs, into the bronchial tubes, and are expectorated. The exit of this matter from the lungs gives rise to little vacuities called caverns, cavities, vomicæ or excavations. A careful examination of the chest, at this time, affords positive evidence of the internal mischief. The upper parts are less freely raised during respiration than in the healthy state; this phenomenon frequently being more evident on one side than on the other. The sub-clavicular regions on both sides, give a dull sound on percussion. To the mind, the ear, or stethoscope, when applied to those portions of the chest situated where percussion is dull, reveals a slight crackling noise—the crepitating rhonchus.

After vomicæ are formed, the cavernous rale or the gurgling is heard, when the cavity is partly filled with liquid. Resonance of the voice and cough, and at length pectoriloquy follow. If a solidified portion of lung, enclosing a considerable bronchus, comes near to the surface of the chest, then bronchial breathing and bronchophony are heard. Percussion, too, will give the same sound, whether the lung be hepatized or blocked up by tubercular matter. This condition of the lungs may be present in one part, while cavities exist in another, and therefore, different parts of the chest will exhibit different physical signs; I have said that the gurgling sound is heard in case the vomicæ contains liquid. But does this sound necessarily prove in all cases the existence of cavities? Dr. Watson remarks, “that where we hear, during inspiration, the gurgling rale—called by Laennec, gargouillement—we may conclude, that there exists a cavity. But the

cavity will not necessarily be a vomica. In ninety-nine cases out of a hundred, it will be so; but in the hundredth, perhaps it will not."

Dilatation of the bronchi, sometimes produces a considerable globular expansion. In case these cavities, formed by such an expansion, were filled with a liquid, the same sound would be produced, as that caused by tubercular vomicae.

*Third Stage.*—The third stage is that period, which commences when cavities are *already formed*, and continues until the termination of the disease. This has been called the colliquative stage, from the copious perspiration, the frequent attacks of diarrhæa, and the abundant expectoration with which it is attended. The feet and ankles become œdematous; the vital powers gradually decrease, one after another; the functions of life fail; the body, by a *facilis descensus*, falls to the earth, and the soul rises to eternity.

*General Symptoms.*—The most important of these are, the colliquative sweat, diarrhæa, extreme emaciation, anasarcaous swelling of the lower limbs, and high febrile excitement. A sure indication of approaching dissolution, is an aphthous condition of the mouth. This usually comes on during the last weeks, or days of existence. The mental faculties, at this period of phthisis, are more or less deranged. Reason remains; but it is not the reason of health. Slight delirium sometimes occurs; the patient becomes indifferent to what is passing around him, and to his own state, when a little while before his attention was aroused by every unfavorable symptom.

*Special Symptoms.*—The expectoration is very copious, consisting of a heterogeneous mass of mucus, pus, softened and occasionally solid tubercle, blood, shreds of lymph, rarely portions of pulmonary tissue, sometimes very fetid. The cough and dyspnœa increase. The

shoulders are raised and brought forward; the chest is narrow and flat. During respiration, the clavicular regions are less moveable than natural, and when the patient attempts to make a full inspiration, the upper part of the thorax, instead of expanding with the appearance of spontaneous ease, peculiar to the healthy state of the lungs, seems to be forcibly dragged up at each respiratory effort.

*Physical Signs.*—The physical signs in the third stage, are similar to those in the second. The gurgling rale, the increased resonance of voice, bronchophony, and pectoriloquy, amphoric resonance, and metallie tinkling, may be present in different cases and at different times. Some of these signs are more frequently heard than others. The metallie tinkling is oftener present in a large than in a small cavity; and since large cavities are formed in the third stage, this symptom is observed only when the disease is far advanced.

*Hæmoptysis.*—This is the most important rational symptom that occurs in phthisis. In other diseases and conditions of the lungs, it is so rare that it very certainly indicates the nature of the case. Hæmoptysis, to be sure, may be produced by other causes—by certain forms of heart disease, by cancer, by cirrhosis of the lungs; and, in females, by vicarious menstruation. But these latter conditions of the lungs are very rare, and therefore hæmoptysis should be considered a strong evidence of phthisis.

*Emaciation.*—This is one of the cardinal symptoms of phthisis. Frequently it precedes the other symptoms. Between the ages of forty and fifty, Dr. James Clark found it one of the earliest symptoms of this disease. Indigestion is regarded by the patient and his friends as one of the principal causes of this atrophy. It is frequently associated with anæmia. There is many times a peculiar physiognomy; the cheek is pale and thin, and the eye bright.

Every organ in the body, except the liver and the heart, even the blood itself, emaciates. And this is often the first symptom noticed. At length slight disturbance is manifest — a little dyspnœa, a little chilliness towards evening, and a tendency to cough. This symptom, emaciation, is not always progressive. The patient may gain flesh, but he soon loses it again; then perhaps gains awhile in weight; and so on alternately. This, however, is observable: he seldom gains as much as he loses. There is a gradual though not a continuous descent. It is true also, that while there is an increase of weight, the tubercular disease advances; and while the patient and friends are elated with hope by the apparent amendment, a fatal termination steadily approaches. Loss of appetite and diarrhœa very much increase the emaciation.

*Diarrhœa.* — The rapidity of the progress of consumption very much depends upon this. With the number of evacuations Louis found that the loss of strength corresponded. This fact should militate against the employment of cathartics in phthisis. “A tablespoonful of castor oil,” says Dr. James Clark, “I have seen throw a phthisical patient into an alarming state of debility.” In those who have in health a costive state of the bowels, incipient phthisis produces regularity of action. Diarrhœa is usually confined to the advanced stage of the disease. In one-eighth of the cases treated by Louis, diarrhœa commenced with the disease, and continued until its termination; in the majority it occurred in the later stages; in others during the last days of life; and in four out of one hundred and twelve cases, it never appeared. The distress attending this symptom is often severe; before each evacuation the pain is often intense, and immediately after it there is a deadly sensation of sinking. It has an effect upon the cough and expectoration.

The severity of these symptoms is usually in an inverse

ratio to that of the diarrhæa. As a diagnostic sign it is not of great value. The nature of the disease is known by other means, before this becomes fully developed. The cause of the diarrhæa is the softening of the tuberculous matter deposited among the coats of the intestines. After death we find ulceration of the mucous membrane, tuberculous deposits thickening and softening, and enlarged mucous follicles, especially near the termination of the ileum and in the colon.

*Œdema.* — This is an invariable attendant of the last stage of phthisis. In young delicate females it may supervene in the earlier stages. Generally it shows itself first in the lower extremities, and is confined to them. In the morning there is sometimes an œdematous appearance in the face. For the diagnosis this is of no value ; but it is a prognostic of approaching death. Is the suppression of the menses the cause of the tuberculous disease ? Some have thought it might lead to tubercles in the lungs. The menstrual suppression is for the most part the effect of that general debility, that deficiency of the nutritive properties of the blood which precedes the deposition of tubercles. If this theory is true, then the treatment, instead of being wholly directed to the restoration of the uterine functions, should be directed to remedy that deficient nutrition and its consequent debility, which cause the menstrual suppression, and the tuberculous deposition. The cessation of the menses is sometimes one of the first, if not the first, prominent symptom of phthisis ; and a careful examination of the case will often discover this to be the fact. Attendant upon this symptom there are, in most cases, a slight cough, a little chilliness and fever, and some of the physical signs of incipient phthisis. In general this function continues, but decreases in quantity, during the early stage of the disease. From a great variety of causes, this

function is so liable to derangement, that as a diagnostic sign it is not of much value.

*Duration of Phthisis.* — Tuberculous phthisis is essentially a chronic disease, the range of its duration being considerable. Cases have been recorded which have terminated in eleven days, while others have lingered for twenty or even forty years. These, however, are extreme cases; the majority terminate in one or two years, the average duration being eighteen months.

*Phthisis in Infancy and Childhood.* — Phthisis is more common in infancy and childhood than was once supposed. Dr. Guersent, one of the physicians to the Hôpital des Enfants Malades, an institution appropriated to the treatment of patients between the age of one and sixteen years, gives, as the result of his observations, that five-sixths of those who die in that hospital are more or less tuberculous. Early in life, its existence is manifested by symptoms somewhat different from those of adults. The cough occurs in paroxysms; hectic expectoration and hemorrhage from the lungs are not so apparent. The tuberculous cachexia, rapid pulse and breathing, emaciation and derangement of the digestive organs, tumid abdomen and irregular action of the bowels, at one time constipated, at another affected with diarrhæa, and the pale unnatural color of the evacuations, point out the nature of the disease. In children the mesenteric glands are more subject to disease than in adults. But the most frequent seat of tuberculous affections is the bronchial glands, and the next in frequency is the lungs. The relative frequency of tubercles in the bronchial glands of children, compared with the lungs, is not less than five to four, which is reversed after the age of puberty.



## CAUSES OF PHTHISIS.

Among the causes of phthisis, hereditary predisposition occupies the most important place. And yet this hereditary tendency explains nothing in relation to the real cause of the disease. It is the name of a fact, not a cause, which is sure to produce specific results. We must, therefore, in order to arrive at anything definite or practical, seek to find that in which the fact has its origin—whether it is a peculiar state of the blood, or a want of functional power,—in the digestive organs, or in the respiratory apparatus. Vitality is the effect of so many conditional causes, each liable to vary in intensity, and by that variation to influence the result—the degree of vitality,—that it is difficult to tell in what ultimate change phthisis has its origin. But the nearer we can ascend to the sources of knowledge, the more general and conditional that obtained knowledge becomes, for all other knowledge relates to it as species to genera. Accordingly, it is evident that if chemistry or optics could detect that condition of the blood, whatever it is, which is most prevalent in the progeny of tuberculous parents, before deposition of tuberculous matter takes place, a general fact would be obtained of more value than many particulars often spoken of by medical writers. From pathology or from chemistry we gain no evidence that those who are predisposed to phthisis have blood essentially differing from that of others. And the existence of the hereditary tendency has been questioned by some recent observers. But because of the non-appearance of an abnormal change in the constituents of the blood, except in rare cases, or because the existence of that tendency is denied, we should not therefore conclude that hereditary influence does not exist. It may exist, but not as an ultimate cause, ever producing a certain result.

*Occupations of Life.*—Concerning the causes of phthisis,

Lombard, of Geneva, has given us some valuable statistical information. The result of his researches is thus stated :— The circumstances which increase the tendency to phthisis are poverty, sedentary habits, violent exercise of the chest, an habitually bent position of the body, impure air in workshops, the inhalation of certain mineral and vegetable vapors, or air loaded with a coarse or impalpable dust, or with light, thready, elastic substances.

The conditions which seem to exert a favorable preservative influence, are easy circumstances, an active life in the open air, regular general exercise, the inhalation of watery vapor, and animal and vegetable emanations. Sedentary habits are prone to produce phthisis. The habit of sitting with the body inclined forward, thus preventing the free expansion of the lungs, and the action of the stomach, and other abdominal viscera, is one cause of the injurious tendency of a studious life. Among shoemakers and tailors, the proportion of phthisical patients is very large.

*Dyspepsia.* — In dyspeptic diseases, many authors have placed one prominent cause of phthisis; and with good reason they have done so. For since tubercles depend for their development upon a want of nutrition in the blood, and since dyspeptic diseases deprive the blood of its nutritive properties, there is every reason to believe, that in this source tubercles have their origin.

There are other causes of phthisis, seldom described in medical works. Of these, one is masturbation, which, by its debilitating effects upon the general constitution, tends in an eminent degree to favor the development of tubercles. Another cause is the use of such remedial agents in the cure of disease, as leave after their primary effects have subsided, secondary ones, which in the end prove worse than the original disease. If this be so, and the history of thousands of individuals corroborates its truth, then

why may not its action upon the system directly induce tuberculous disease? Indirectly, if not directly, by debilitating the system deteriorating the red blood, and inducing emaciation, it so influences the mass of the fluids, as to predispose the system to the ingress of phthisis; it leaves the territory unguarded by any vital force, even by that mysterious one, "*the vis medicatrix naturæ*." A patient, somewhat predisposed to phthisis, takes a severe cold in the autumn. Febrile symptoms supervene. There is, according to the opinion of some, an exalted condition of vital action; and consequently, all the instruments of the antiphlogistic regimen and treatment, are immediately used to subdue the inflammation. After a number of weeks, the patient may slowly recover. But his digestive organs do not seem to be healthy. Strength does not return; a slight cough begins, and in from six months to a year, phthisical symptoms are fully developed. Such cases often occur, and so often, that the more judicious physicians of all creeds, even those standing on the conservative platform, now begin to abandon the use of depressing remedies; not because as some often pretend, diseases are now so different in their nature, as not to require the same treatment, but because the application of science to the study of medicine, has exploded the idea that it is necessary to hazard life, by the use of deleterious agents, in order to produce a speedy and complete cure.

*Prognosis.* — In those cases where the disease is far advanced, the prognosis is always very unfavorable. So small is the chance of recovery, that the physician has no good reason to encourage either patient or friends.

But morbid anatomy has demonstrated, that even in the last stages, recoveries do take place; the cavities are filled with chalky concretions, their parietes contract, and cicatrices are produced. What else than the cure of phthisis do such facts teach? On this subject, Dr. Swett remarks,

"I never shall entirely despair of the life of a patient, when I recollect what I once witnessed in this Hospital. A patient was admitted with phthisis. The disease was perfectly well characterized, and in its most advanced stage; a large and well-marked abscess existed under the right clavicle. Indeed the signs of this lesion were so distinct, that I was in the habit of calling the attention, of students in attendance, to them, as perfect in their character. On one occasion, as I approached the bed for this purpose, I found the patient, who had been gradually sinking, in such a state that it seemed to me improper to disturb him. He was bolstered up in bed, with his head falling upon his shoulder, breathing with great difficulty, bathed in perspiration, and with a rapid and feeble pulse. The next day my attendance ceased, and after two months was again commenced. On entering the ward, the house physician called my attention to a man, dressed, and walking about the ward, apparently stout and well, although somewhat pale. To my great astonishment, it was the patient I had left two months before, apparently dying." The same author testifies that he has known a number of cases of patients, who have had all the evidences of phthisis, and yet have recovered.

#### TREATMENT.

"The indications to be fulfilled in the treatment of this disease," says Prof. Calkins in his very excellent work on thoracic diseases, "are, first, to prevent the further deposition and development of tubercles; and, secondly, to prevent and to protect, as far as possible, the lungs and other organs from their injurious results. The means both prophylactic and remedial, which can be of any utility for this purpose, must be directed to the attainment of this result: the production of that state of the solids and fluids which is most adverse to the development of tubercles." Prof.

J. G. Jones says : " The leading indications to be fulfilled in the treatment of this disease are twofold, to wit : 1. To change the condition of the blood, and restore the qualities pertaining to its healthy state. 2. To prevent the further deposition and development of tubercles, give tone and vigor to the whole system, and in a measure change its diathesis." Profs. Newton and Powel, in a work on the treatment of diseases, make the following remarks : " In the treatment of this disease, little else can be done than to make use of means which will enrich the fibrinous portions of the blood, strengthen the nervous and muscular system of the patient, and relieve troublesome and dangerous symptoms as they may appear." Dr. Walshe gives the results which he obtained in the Consumption Hospital as follows : " 1. Of a given mass of patients entering the hospital in all stages of the disease, and in every variety of general condition — between the actual moribund state and that of but slight constitutional suffering—the number leaving it, on the one hand, *improved* or *unadvanced* was more than double that, on the other hand, leaving it in a worse state or dying within its walls (the exact ratio is 67·84 : 32·16). If the cases in which death was actually imminent at the period of admission, were excluded, the result would be very materially more favorable than this. 2. In 42·6 per cent. of the cases, complete restoration to health, not only as regards apparent disturbance of the functions generally, but as regards local evidence of actual pulmonary disease, was effected. 3. Complete removal of symptoms was more frequently effected in the male than in the female ; but, on the other hand, the results were on the whole slightly more favorable in the latter than in the former sex. 4. All patients who grew worse while they were in the hospital had reached the stage of excavation on admission ; and all patients whose tubercles were yet unsoftened on admission, left the hospital either improved,

or having had a *statu quo* condition kept up. Improvement is more probable than the reverse, even where excavation exists on admission. 5. In a given mass of cases, the chances of favorable influence from sojourn in the hospital will be greater in a certain (undetermined) ratio as the duration of the disease previous to admission has been greater; in other terms, natural tendency to a slow course is a more important element of success in the treatment of the disease, than the fact of that treatment having been undertaken at an early period. 6. The mean length of stay in the hospital, in the most favorable class of cases, nearly doubled that in the least favorable. 7. The chances of benefit are most in favor of those whose trades are pursued out of doors (wholly or partially) than of those who work wholly within doors. 8. The results did not appear to be influenced by the laborious or non-laborious character of the trade individuals might have pursued. 9. The age of the sufferers did not appear to exercise any very material influence on the character of the results. 10. Patients coming from the country have, on an average, a slightly stronger chance of improvement than the residents of London and its suburbs. 11. Patients admitted during the warmer half of the year, benefit by a sojourn at Brompton, to a slight extent, more than those received during the six colder months."

From the above facts, together with the experience of every intelligent Eclectic physician, it appears that pulmonary consumption is occasionally cured, and sometimes terminates favorably without medical aid; and perhaps I might state, in spite of medicinal treatment. But when we consider the irrational treatment which has been relied upon for the cure of this disease, we can hardly be surprised at its fatality. Nor that not only the medical fraternity, but the community generally, have been led to believe that it is incurable. So much so is this the case, that



a large number of physicians deem it a sufficient apology for losing a patient in the prime of life, to state that he died of pulmonary consumption. I do not expect in this article to lay down a course of treatment that will always cure, irrespective of age, condition of the patient, and stage of the disease; but, I do expect to explain such a course, as will, if properly applied, cure a large proportion, and materially relieve such as cannot be entirely restored.

When a person exhibits premonitory symptoms of phthisis, every exciting cause of the disease should be removed. The patient should exercise freely in the open air, and be placed upon a full and nutritious diet, such as beef-steak rare cooked, &c. He should also take a reasonable quantity of some stimulant, as brandy toddy, or some malt liquors, before each meal. If this does not remove those early symptoms, chalybeates, in connection with sugar, may be given as follows :

R Precipitated Carbonate of Iron..... ʒij.  
 White Sugar..... ʒviij.

Mix and triturate, take one teaspoonful three or four times a day. Should the beef, and other articles of food, not be well digested, on account of a dyspeptic habit which frequently precedes this disease, slightly cooked eggs and rich animal soups may take their place. This course has been efficient in my hands in a large number of cases, where the early symptoms of phthisis were developed. But where the disease is farther advanced, with more or less anemia, cough and expectoration, with depression beneath the clavicle, feeble respiratory murmur, and dulness on percussion, and especially if there is connected with this a tubercular diathesis, then much effort will be required to prevent a disastrous encroachment of the disease. In this condition and stage of symptoms, the following treatment should be instituted.

A large double flannel cloth, within which has been quilted a liberal quantity of coarse salt, should be placed over the chest and back in such a manner as to protect both the anterior and posterior portions of both lungs. This salt pack should be changed from time to time, but should be worn until the disease is removed. And for supplying those deficiencies of the blood, which are such a prolific cause of pulmonary consumption, give the following compound :

R The white of eggs.....	xij.
Iron by Hydrogen.....	gr. xx.
Phosphate of Lime.....	ʒij.
Chloride of Sodium.....	ʒij.

Mix with one pint of best brandy, one pound of sugar, and one pint of water; dose one tablespoonful three or four times a day. In connection with this, the patient should exercise freely in the open air, and should make a liberal use of warm or cold baths, as the case may seem to indicate. If there are chills,

R Quinine .....	gr. xx.
Phosphate of Iron.....	gr. x.
Morphine .....	gr. jss.
White Sugar.....	gr. xxx.

Mix, triturate, divide into fifteen powders, and take one every three hours. If the first fifteen powders fail to interrupt the chills, they should be repeated from time to time, until they cease entirely. If there is troublesome cough, with dyspnœa, give the following mixture :

R Simple Syrup of Stillingia.....	ʒij.
Syrup of Tolu.....	ʒij.
Morphine.....	gr. ij.

Mix; dose, one teaspoonful three times a day, and oftener if required. If there appears to be bronchial irritation, from one-eighth to one-half a grain of Gelsemin should be taken at bed-time. If the salt pack should be removed

at any time during the treatment, the chest should be well protected by oil silk or flannel. In nearly all cases of pulmonary consumption, there is a deficiency of the natural covering, the hair. In fact, so general is this the case, that I have come to regard a deficiency of hair on the chest as one of the indications of a tuberculous diathesis. For the hair is not simply an ornament, but it serves to separate certain proportions of carbon, silica, sulphur and other materials from the blood. As the disease advances to the latter part of the second stage, other symptoms make their appearance, as diarrhæa, and a muco-purulent matter or pus, constituting the sputa, indicating a breaking down of the tuberculous deposit, with more or less affection of the glands of the bowels. To control the diarrhæa, no medicine is more effectual than the following :

℞ Sub-nitrate of Bismuth..... gr. xx.  
 Quinine.. ..... gr. xvj.  
 Pulverized Gum Arabic..... gr. xxx.

Mix, triturate, divide into twenty powders, and give one every five or six hours until that symptom is controlled.

The method of treating this disease by introducing medicine into the system by inhalation, having received much attention of late, I will quote the remarks of Dr. Turnbull upon the subject, as they appear to embrace most of the facts essential to it.

“ Dr. Snow has shown, in a paper on the inhalation of various medicinal substances, that some must be inhaled by the aid of heat, such as opium, morphia, extract of stramonium, and the gum resins ; others with heated vapor, such as iodine, camphor and creosote, and a third class of substances, such as hydrocyanic acid, ammonia and chlorine, at the ordinary temperature. Mead, in his day, recommended fumigations with the balsams in phthisical cases,

and Dr. A. T. Thomson (*Cyclopedia of Medicine, Art Expectorants*) has stated that he has seen much benefit derived from them, when inhaled in spasmodic asthma, in shortening the paroxysm, and promoting expectoration. Dr. Snow found that ammoniacum gives off a fragrant, rather pungent odor, which can be inhaled very well by most persons. He also found inhalation of the watery extract of opium serviceable in relieving the cough; but that morphia was the most pleasant and suitable preparation of opium for inhalation. Extract of stramonium afforded more or less relief in five or six cases of asthma.

He tried iodine in eighteen cases of consumption at Brompton Hospital; in ten of them it was continued for more than a month; and the conclusion to which he came, was that no benefit could be observed to follow its use. Oil of turpentine appeared to relieve the cough in a few cases, and likewise camphor. He used the volatile alkaloid conia in the quantity of one minim, diluted with nine of spirit; the cough was usually relieved, and in two or three cases the breathing also. It would seem, therefore, from its volatility at the ordinary temperature, to be a remedy peculiarly suitable for inhalation, if it could be obtained more easily. Dr. Snow also found great relief in a few cases of bronchitis with difficult expectoration, from inhaling ammonia, twenty drops of the strong solution being mixed with two ounces of water in a Woulfe's bottle. Chlorine has been used for inhalation; it was introduced for this purpose in France, and there is good reason to believe that it has proved of material service in cases of chronic bronchitis, and even in some of phthisis.

With reference to its use in this latter disease, Dr. James Clark has observed, "We have tried it in many instances, and it has in several, apparently suspended the progress of the disease." He also states that it relieved dyspnoea and cough in some cases, though in the majority

it procured no amelioration. Dr. A. T. Thomson has likewise stated, that in cases of asthma, the relief it produced was very striking, and that in phthisis, he had observed the hectic symptoms abate.

Of the various remedies now mentioned, it is probable that gum resins and balsams, camphor, conia, and chlorine, are the most suitable and useful for inhalation; but it does not appear that by inhalation of opium, or morphia, very decided advantage has been gained over the ordinary mode of exhibiting them.

The vapor of tar was formerly recommended for inhalation, and few medicines have been more used for this purpose than creosote. Sir Alexander Crichton, in 1823, strongly recommended tar vapor in consumption; but Dr. Forbes, in a report of cases in which he had tried it, published in the Medical and Physical Journal, stated that he found it injurious in this disease, though of service in some cases of chronic bronchitis. He appears, however, to have used it in cases so far advanced, that no benefit could reasonably have been expected from its employment. Creosote has now superseded the use of tar vapor, which does not, from its irritating properties, seem well suited for inhalation, though there can be very little doubt, when we consider the healing power it has in external application, that it must exert a similar effect upon the lungs, if it could be used in such a form as to obtain its beneficial influence apart from its irritating properties. Creosote is perhaps more generally used by the profession for the purpose of inhalation, than any other remedy; and I believe that when sufficiently diluted with vapor of water, it is one of the most useful. I have found that it has a sedative influence, relieving cough and promoting expectoration, whilst it at the same time not unfrequently lessens the quantity of this secretion, both in consumption and bronchitis. I have already observed

that the pyrogenic bodies act upon the mucous and cutaneous surfaces; and my attention has been directed to other bodies of this class, by the fact that many of them have remarkable healing properties, when applied to ulcers and chronic cutaneous eruptions, a fact which leads me to expect that this class of bodies may, when fully investigated, furnish a suitable remedy for promoting the healing of pulmonary ulcers, and thus supply the desideratum to which I have previously alluded. Many of the pyrogenic bodies possess such healing properties in cutaneous diseases, in a greater or less degree. From my own experience, I know that ointments, made with tar, creosote, spirit of tar, juniper tar oil, and naphthaline, have such properties, and are valuable remedies in the treatment of skin diseases.

The inference drawn from these facts, has led me to use for inhalation, some other pyrogenic bodies, viz: spirits of tar, juniper tar oil, Persian naphtha, and enpione. The spirit of tar possesses the healing virtues of tar without its irritating effects; so much so, that I think it might advantageously supersede the crude substance as an external remedy. It is more readily volatilized than creosote; and when inhaled, it produces generally a mild, stimulating, and often rather a soothing effect upon the lungs. In some instances, however, it has appeared to increase the cough and expectoration, and it is not, therefore, suited for bronchitis, until inflammatory action has been subdued completely; or for cases of consumption, until progress has been made in arresting the disease. Without wishing to speak confidently of the remedy, I may state that it has appeared useful in some cases of the latter disease, in conjunction with other treatment. Juniper tar oil (*oleum codinum*), which is a valuable remedy in skin diseases, and much used on the Continent, is less volatile than spirits of tar, and is less irritating when



inhaled. Persian naphtha and eupione possess decided anæsthetic properties; the former, when inhaled along with the vapor of water, has in some instances relieved difficulty of breathing in a very remarkable and decided manner; and this fact renders it worthy of trial in spasmodic asthma. Eupione has decided sedative properties: it has relieved cough and difficult breathing, and patients have slept well after using it; but it is not a pleasant remedy to inhale, and it has not unfrequently produced sickness afterwards, so that I should not recommend it to be used for this purpose.

I have used several of the essential oils for the purpose of inhalation. Many of them possess decidedly anti-spasmodic properties, and I have found that they have a remarkably strong power over difficulty of breathing, a property which renders them peculiarly suitable for relieving spasmodic asthma. The oil should be dissolved in spirit, and inhaled with the vapor of water, so as to dilute its stimulating properties. The oils of cubebs and copaiva, which are hydro-carbons, are mild in their action, and produce very little stimulating effect. The oxygenated oils which I have used appeared to be more stimulating in their action on the air-tubes, and some of them have stronger anti-spasmodic and expectorant properties. The oils of anise and peppermint are very stimulating, and in general cause too much irritation. Oil of spearmint is milder and antispasmodic, relieving difficulty of breathing in asthma, and even in phthisis. Oil of fennel is also mild. The oil of origanum is moderately stimulating and expectorant. I have also used the oils of rosemary and pimento, which have similar properties. The hydruret of benzyle, which is the oil of bitter almonds deprived of its prussic acid, is very irritating and much too stimulating for inhalation. Chloroform is a remedy which has been much used by some medical men for the purpose of inha-

lation, not only in asthma, but, in a small quantity, in consumption, in order to relieve irritable cough. In some cases I have dissolved the essential oils in chloroform, and used them in this way for inhalation, their volatility being thus so much increased that they may be given on a handkerchief, as chloroform is usually administered.

In addition to the remedies spoken of by Dr. Turnbull, Carbonate of Ammonia, Nitrate of Silver, Sanguinaria and Veratrum Viride have been quite extensively used by different physicians, and in some cases to much advantage. The oil of Erigeron, spoken of by Dr. Turnbull, I have used quite successfully in several cases of hæmoptysis, connected with phthisis, but whether it acts more efficiently in this way than when introduced into the stomach, I am not prepared to say. If the inhalation of medicine be resorted to, the introduction of medicine into the stomach should not be neglected. We can readily conceive how ineffectual a treatment exclusively by inhalation must prove, since the well established pathology of this disease shows the local affection of the lungs to be only one of the unhealthy products of the constitution. In this stage of the disease, much benefit will be derived from the use of diuretics to relieve the blood from the excess of uric, and other acids, with which it becomes overcharged, and also of the disintegrated tissue which accumulates in the system, owing to imperfect respiration. Among the best diuretics to accomplish this object is the following :

R Pipsisewa .....	℥j.
Indian Hemp .....	℥jss.
Marshmallow .....	℥j.

Bruise all together, and make one quart of syrup with white sugar, and add one half pint of best gin, and let the patient take from one half to one wine glass full four or five times a day.

For the purpose of procuring rest at night,

R Quinine.....	gr. x.
Scutellarin .....	gr. xv.
Gelsemin.....	gr. ij.
Iron by Hydrogen.....	gr. xij.

Mix, divide into ten powders, and give one every night at bed-time.

Where there is great emaciation and debility in this stage, for supplying material for combustion, and for increasing the quality and quantity of blood :

R Cod Liver Oil.....	Oj.
Good Brandy.....	Oss.
Chloride of Sodium.....	ʒij.
Phosphate of Iron.....	ʒjss.

Mix, and shake well before using. Dose, one tablespoonful three or four times a day. If there is much bronchial irritation in connection with tuberculous affection,

R Syrup of Stillingia.....	ʒij.
Tct. of Veratrum Viride.....	ʒss.

Mix, and give thirty drops three or four times a day.

For the purpose of promoting absorption of the already existing tuberculous deposit, Prof. John Fonday, Emeritus Prof. of Theory and Practice of Medicine in the Eclectic Medical College of Pennsylvania, who has had great experience in the treatment of this class of diseases, places much reliance on the use of electricity.

In his treatise upon this subject, p. 68, he thus remarks: "The electro-magnetic machine constitutes one of the most powerful means that we possess, to accomplish the results so desirable in the treatment of this disease. What we want in the remedies which we employ, is some power that will excite the contractility of the coats of the vessels, of the enlarged absorbent glands, as well as of the lymphatic vessels; give strength to the magnetic organization of the

part, and promote the absorption of the deposits that may have occurred in and around these glands and vessels."

Dr. Cartwright, of New Orleans, who has published several very interesting articles upon the nature and treatment of tuberculous affections of the lungs, cites quite a number of cases where absorption of the tuberculous deposition was effected by the inhalation of the vapor of sugar.

I have generally obtained the most satisfactory results in promoting the absorption of tuberculous deposits by the use of Iodide of Potassium, in connection with mucilage. The mucilage prevents the irritating effects of the Iodide of Potassium on the bowels. The chest should be thoroughly bathed twice a day with a liniment made as follows :

℞ Oil of Stillingia .....	℥j.
White of three eggs.	
Oil of Turpentine .....	℥ij.
Chloride of Sodium .....	℥ij.

Mix, and shake well together. During the entire treatment of this disease, the strictest attention should be given to bathing, diet, and exercise in the open air. Every means should be resorted to which has a tendency to improve the general health of the patient. Where the disease assumes a periodic character, the greatest benefit will be derived from administering a liberal quantity of Quinine and Iron every seven or eight days. When the disease is complicated with other local difficulties, such as leucorrhœa, spermatorrhœa, &c., they should receive especial attention.

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## HÆMOPTYSIS.

By hæmoptysis we understand expectoration of blood. It may occur from the mucous surface of the bronchial tubes ; by extravasation of blood into the pulmonary tissue, &c., or from the corrosion of a blood-vessel on the wall of a tuber-

culous vomica. It is also said to occur from the granulated surfaces in phthisis. The most common cause of the disease in females, when it occurs from the mucous surface of the bronchi, is vicarious menstruation, which takes place about the period of the catamenia. In these cases, for some time previous to the attack, there will be observed a diminution in the catamenial flow, accompanied by anæmia. Indeed, we have reason to suspect that, in connection with the catamenial derangement, there is tuberculous affection of the lungs. I do not recollect, out of a large number of cases, a single exception, and in quite a number of cases, it has terminated in acute phthisis. When the blood escapes from the bronchial mucous surface, it may be detected by the bubbling liquid rhonchus in the bronchi. The discharge is generally preceded by more or less constitutional disturbance, such as constipated bowels, furred tongue, and cough, which is often persistent, and accompanied with great dyspnœa. Where it occurs from the rupture of corroded blood-vessels, the premonitory symptoms are quite obscure, and the discharge of blood is very sudden, with violent cough and dyspnœa. The physical sign is the mucous *râle*. When it occurs from the granulated surface of the pulmonary tissue, or from pulmonary apoplexy, a correct diagnosis of the case may be made from its previous history, together with the rational and physical signs. The general symptoms of hæmoptysis are dulness, cold extremities, followed by flushes of heat, and red cheeks. The discharge from the lungs is attended with dyspnœa, pain, and oppression of the præcordia, a sense of rawness in the throat, and a sweetish taste in the mouth. The expectoration consists of bright, frothy, or black and clotted blood, sometimes mixed with mucus. Says *Laennec*: "When the hemorrhage is very great, it comes on with a moderate degree of cough, and is accompanied with a convulsive elevation of the diaphragm

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like that which takes place in vomiting. Auscultation furnishes us with two signs of pulmonary apoplexy, absence of the natural respiratory sound over a circumscribed space and erepitant *râle* around this space.

#### TREATMENT.

Where this disease is dependent upon derangement of the catamenia, the feet should be placed in warm water, and hot sinapisms applied to the back and lower portions of the bowels, and from five to ten grains of pulverized matiao given every fifteen or twenty minutes until the hemorrhage ceases. Or, put one drachm of the oil of Erigeron in a pint bottle, fill it with hot water, and cause the patient to inhale the vapor. Either of these remedies will arrest the hemorrhage. Or, in the absence of other remedies, a teaspoonful of a strong solution of salt and water taken every five or ten minutes, will frequently prove effectual. As soon as this symptom is removed, the patient should be put upon a treatment as directed under the head of irregularities of the catamenia. Where hemorrhage occurs from the rupture of large vessels, ligatures should be applied to the legs and arms, and the patient caused to inhale a strong vapor of the oil of Erigeron, and at the same time from five to ten grains of the matiao should be given every fifteen or twenty minutes, until it is arrested. During the active hemorrhage, the ligatures should be so adjusted as to retain the main volume of blood in the extremities, which should only be allowed to return by degrees after the bleeding has ceased.

As this form of hæmoptysis is always connected with phthisis, the patient should be treated accordingly. If it arises from pulmonary apoplexy, the ligatures should be used as in the other case. A hot sinapism should also be applied to the chest, and the surface should be thoroughly bathed in hot whiskey and capsicum, for the purpose of



diverting the blood from the deep capillaries of the lungs to the superficial capillaries. Also, administer the matico with small doses of Lobelia and capsicum every fifteen or twenty minutes. The bowels should be moved by a stimulating injection, and the patient allowed to hold ice in his mouth.

As soon as the hemorrhage ceases, the circulation should be controlled by the use of Aconite. As this form of hæmoptysis is connected not only with phthisis, but also with pneumonia and scurvy, the primary cause of the affection should be treated according to the nature of the case, and the condition of the patient.

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## BRONCHITIS.

Inflammation of the mucous membrane of the bronchi is one of the most common forms of pulmonary disease. It may be either acute or chronic. In the acute form, coryza, sore throat, hoarseness, and slight rigors, are the first symptoms. There is also lassitude with more or less pain in the limbs. As the disease advances there is a sensation of heat and soreness or rawness of the bronchial surface, accompanied by pain on coughing, and oppressed breathing. There is a persistent cough, with an expectoration of frothy mucus of a saline taste. In a more severe form of the disease, the small capillary tubes, as well as those of a medium and large size, are implicated. In this form of the disease the pulse is extremely frequent; there is great dyspnœa, a cyanotic appearance of the countenance, coldness of the body, difficult respiration, and a marked tendency to asphyxia. In these cases the vital powers rapidly become exhausted, and unless relieved by timely treatment, delirium with fatal coma terminates the patient's existence.

*Physical Signs.*—In certain cases slight dulness on percussion will be detected. In protracted cases, a considerable amount of dulness may be observed at the base of the lung, owing to the gravitation of the excreted fluid. On auscultating the chest, the respiratory murmur will be found weakened, and in some instances entirely suppressed. There is sonorous, sibilant, and mucous rhonchus in various combinations. The sonorous and sibilant rhonchus is most marked in the early stage of the disease; the mucous in the second. But both are frequently combined in the second stage. In capillary bronchitis, in addition to the above signs, there is sub-crepitant rhonchus at both bases, posteriorly, with a fine mucous râle higher up. If the fine mucous râle is predominant, it most positively indicates inflammation of the capillary bronchial tubes.

## TREATMENT.

The surface should be thoroughly bathed in hot lye water, and the patient placed in bed with a warming poultice applied over each lung. From five to ten drops of the Tinct. of *Veratrum Viride* should be given every half hour until the active symptoms of the disease disappear. As soon as this occurs—

R Quinine.....	gr. xv.
Gelsemin .....	gr. jss.
Iron by Hydrogen .....	gr. x.
Pulverized Acacia .....	gr. xx.

Mix, and triturate; divide into eight powders, and give one every two hours. After which, if there are any lingering symptoms, small doses of the Tinct. of *Aconite* should be given. To relieve the cough, if any should remain, the acetic Syrup of *Sanguinaria* should be used as indicated. The patient's strength may be maintained by the use of chalybeates, vegetable tonics, and a nutritious diet.

## CHRONIC BRONCHITIS.

This, like other forms of chronic inflammation, frequently succeeds the acute form, although it may occur in a slow and insidious manner, without being preceded by an acute form of the disease.

It attacks individuals of all ages; but is most frequently met with in the aged, and those who are much exposed to the inhalation of dust. When the disease succeeds to acute bronchitis, the febrile symptoms disappear; but the pulse still remains frequent, and the cough and difficulty of breathing prove persistent, although these symptoms are materially relieved by free expectoration. There are still nightly exacerbations, and irregular sleep. The expectoration is copious, opaque, and in some instances, puriform. Night sweats are frequent, occasioning great debility. If the disease should not be relieved, the cough will become croupy, the expectoration more copious, the dyspnœa increases, there is diarrhœa, and death soon follows.

*Physical Signs.*—These are sub-crepitant, mucous, sibilant, and sonorous rales. It is said by Laennec, that we frequently have all the sounds in chronic bronchitis quickly following each other, which he calls, "*cantus omnium avium*" (the song of all the birds). If the disease is mostly confined to the extreme ramifications of the bronchi, the sub-crepitant rale will be predominant; if the larger tubes, the sibilant. If the larger tubes are the seat of the disease, the sonorous rale will indicate it.

## TREATMENT.

In the early stage of chronic bronchitis:

R Compound Syrup of Stillingia..... Oss.  
Iodide of Potassa ..... ℥j.

Mix, and take one teaspoonful every five or six hours. A salt pack should be applied to the chest, and occasionally moistened with equal parts of the Tinct. of Iodine and Aconite. If there are night sweats, and periodical exacerbations:

R Quinine .....	gr. xx.
Iron by Hydrogen .....	gr. x.
Cream of Tartar .....	gr. xxx.

Mix, triturate, divide into eight powders, and give one every four or five hours. If there is much debility, a liberal use should be made of porter, ale, or brandy, together with a nutritious animal diet. Where there is much irritation of the upper part of the bronchi, benefit is sometimes derived from the use of astringent gargles. Also by inhaling the vapor of Aconite or Lobelia.

If the cough is troublesome at night, a small dose of Lupuline, Morphine, and Prunin, may be taken at bedtime. When the disease assumes a tuberculous character, it should be treated as in phthisis.

## EMPHYSEMA.

This term applies to air in the cellular tissue, all portions of which are liable to the affection. The subcutaneous is the most so; but all the prolongations of this tissue through the body communicate with it by the areolar structure. Thus the air when effused into the cellular tissue may pervade nearly every tissue of the body.

There are three ways by which air may make its ingress into the cellular tissue. 1. By a wound of the integument. This is termed traumatic emphysema. 2. By the development of gas within its cells. 3. By a fistulous opening through the lung, communicating with the pleural cavity.

The diagnosis of emphysema is seldom difficult. As when air accumulates in the cavity of the pleura, it will readily be distinguished from empyema, by the resonance on percussion. And when it accumulates in the cellular tissue, the swelling is uniform and light, and yields a peculiar crepitant sound upon pressure, caused by the removal of the air from one cell to the other.

The prognosis will depend upon the cause of the emphysema and the state of the respiratory organs.

#### TREATMENT.

In the treatment of this disease the object should be to arrest its progress by preventing a further accumulation of air in the cellular tissue, and to remove that already accumulated. In spontaneous emphysema the only effectual method of arresting the disease is to correct the morbid state of the system, which gives rise to it. When it proceeds from asthemic and typhoid disease, Quinine and Iron with a liberal diet will generally arrest its progress. By scarification, the air which has previously accumulated, will make its escape. In emphysema arising from wounds, by enlarging the wound so as to give free exit to the air, the difficulty may be relieved. Where it occurs as the effect of a fistulous opening into the pleura, the inhalation of the vapor of nitrate of silver, together with astringents, will generally effect a cure. If there is tuberculous affection of the lungs, it should be treated as directed under that head.

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### NEPHRITIS, OR INFLAMMATION OF THE KIDNEYS.

#### SYMPTOMS.

There is an acute pain in the region of the kidneys, with some fever, and a dull pain in the thigh of the affected side. The urine is at first clear, but soon becomes of a

dark red color. The patient feels great uneasiness when he attempts to walk or sit upright. He lies easiest on the affected side. The pulse is, at first, hard and full, but in the course of a few days, it becomes small, weak, and quick. The skin is hot, and the tongue covered with a dark brown coat.

## TREATMENT.

Apply hot wet packs over the region of the kidneys, and give freely of the syrup of Marshmallow, Cliver tea, &c. Also, give the following compound :

R Sweet Spirits of Nitre .....	℥j
Tinct. of Aconite .....	gutt. xxx.
Gelsemium .....	℥ii.

Mix, and give fifteen drops every two or three hours as the case may indicate. If the disease should prove obstinate, a mild alterative of Euonymine should be given at bedtime, and Digitalis and Cream of Tartar should be substituted for the Aconite and Gelsemium. The patient should keep quiet, and in bed, and the diet should be of a light vegetable character.

CYSTITIS, OR INFLAMMATION OF THE  
BLADDER.

Inflammation of the bladder very much resembles that of the kidneys in its symptoms. But there may be acute pain and tension at the lower part of the bowels, and difficulty of urinating, with constant inclination to do so, and also to go to stool.

## TREATMENT.

The bowels should be thoroughly evacuated by Jalapin and Neutralizing mixture. The patient should be placed in bed, and hot packs should be applied over the region of the bladder. The bladder should be injected with a



luke-warm mucilage of slippery elm, and the patient caused to drink of Marshmallow, flaxseed, slippery elm, &c. If the inflammation is not thus controlled, give the following compound :

R Pulverized Acacia .....	gr. xx.
Soft Water .....	℥ii.
Sweet Spirits of Nitre .....	℥ss.
Tinct. Veratrum Viride .....	gutt. xx.

Mix, give one half teaspoonful every half hour until the symptoms are controlled. Continue the mucilage until the patient is completely free from the disease.

## HEPATITIS, OR INFLAMMATION OF THE LIVER.

### SYMPTOMS.

The diagnostic symptoms of this disease are tension of the right side, under the false ribs, attended with fever, difficulty of breathing, anorexia, thirst, and a pale and yellow appearance of the skin and eyes. When the inflammation is extensive, the pulse becomes quick and hard, and sometimes irregular. The patient is troubled with a dry, hacking cough, and a constipated condition of the bowels; although, in the latter stage of the disease, and in warm climates, there is sometimes a diarrhæa with bilious vomiting, great tenderness in the hypochondrium, and dulness on percussion.

### TREATMENT.

A hot sinapism should be placed over the region of the liver. The surface should be bathed in warm lye water, and the following compound be given :

R Euonymin .....	gr. xx.
Sanguinarin .....	gr. x.
Bitartrate of Potassa .....	gr. xxx.

Triturate, mix; divide into ten powders, and give one every three hours. At the same time, if there is fever, give from ten to twenty drops of the Tinct. of Gelseminum so often as to maintain a gentle moisture of the skin.

When the sinapism has produced irritation of the surface, it should be removed and hot packs applied instead. If the disease should still prove persistent, the following compound must be substituted for the first :

R Muriate of Ammonia .....	gr. xx.
Irisin .....	gr. x.
Gelsemin .....	gr. j.

Triturate, mix, divide into ten powders, and give one every two hours until all are taken, or until the disease is removed. If the disease should assume a chronic form, a pill of the extract of Dandelion and Capsicum should be given two or three times a day. If the bowels should become constipated from a deficient secretion of bile, give the following compound :

R Syrup of Boneset.....	Oss.
Common Salt.....	℥i.
Sulphur .....	gr. xxx.

Mix, and give one teaspoonful three times a day, and let the diet be free and nutritious.

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## ASTHMA.

### SYMPTOMS.\*

The symptoms indicating asthma are various. Some of them are premonitory, and, by those who are accustomed to the affection, are understood as warnings of an approaching attack. Among these are loss of appetite, flatulence, eructation, languor, irritability, drowsiness, oppression and chilliness. Perhaps he retires at night with a sense of uncomfortableness.

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\* Calkins.

It is very common for an attack actually to commence sometime after midnight, or about 2 or 3 o'clock in the morning, and the general signs are much like the following :

Often the person is aroused from sleep by a feeling of constriction across his chest, or inability properly to expand it. He raises himself in bed, and sits bowing forward, perhaps with his elbows resting on his knees, drawn up before him. His breathing is labored, and attended with a wheezing noise, often so loud as to be audible in another apartment, or at a distance.

He asks for more air to be admitted into the room, and makes a strong voluntary effort to expand his chest in inspiration, and to contract it in expiration ; or, if able, he rises from his bed, and hastens to a door or window, at which, however cold the weather, he often long remains. The labor of respiration gives warmth to his body, and he often perspires freely. His extremities, however, are liable to become cold, and his countenance is generally distressed, pale and haggard, though sometimes it is red and turgid. Often the pulse is small, feeble and irregular, though sometimes it is scarcely disturbed. Sometimes the heart palpitates, and flatulency becomes troublesome ; the urine becomes copious and pale, and even the fæces are passed with the impatient hurry of spasmodic action. The speech of the sufferer is interrupted and difficult, and there is a propensity to cough, which he sometimes favors with the hope of forcing away the impediment to his breathing.\*

#### TREATMENT.

In the treatment of this disease, the first thing to be attained is the relief of the excessive dyspnœa. For this purpose, give the following mixture :

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\* Calkins on Thoracic Diseases.

℞ Tinct. of Gelsemium..... ℥j.  
 “ Lobelia ..... ℥ss.

Mix, and give fifteen or twenty drops every ten or fifteen minutes, till the paroxysm passes off. After which, give the following compound :

℞ Quinine..... ℥ij.  
 Cornine ..... ℥iij.  
 Compound Syrup of Stillingia..... Oj.  
 Phosphate of Lime..... ℥j.

Mix, and give from one half to one teaspoonful three times a day, during the interval between the paroxysms of dyspnœa. Whenever the paroxysms return, the Gelsemium and Lobelia should be repeated. But as soon as relief is obtained, the alterative and antiperiodic should be resumed. Other medicines, such as Chalybeates and vegetable tonics, if required to maintain the integrity of the constitution, should be given. The above course, if persisted in, will seldom fail to remove this very troublesome disease.

## CHOLERA MORBUS.

Cholera Morbus is a violent purging and vomiting, with griping, sickness, and a constant desire to go to stool.

It is occasioned by a redundancy of bile, by the fermentation of food on the stomach, such as cucumbers, melons, sweet-meats, cherries, and all unripe fruit. Also exposure to damp night atmosphere.

### SYMPTOMS.

It is generally preceded by Cardialgia, sour stomach, flatulency, and pain in the bowels. As the disease advances, the pulse becomes very feeble, and the surface cold and clammy. The urine is scanty, and there is almost constant vomiting and purging.

## TREATMENT.

R Neutralizing Mixture.....	℥ij.
Tinct. of Prickly Ash Berries.....	℥j.

Mix, and give from 30 to 60 drops every fifteen or twenty minutes, till the vomiting and purging cease. Apply a hot sinapism over the region of the stomach and bowels, and place jugs of hot water about the patient. If the use of the above mixture for a proper time does not afford relief, give the following :

R Pulverized Camphor.....	gr. x.
“ Capsicum.....	gr. xv.
Oil of Peppermint.....	gutt. iij.
Morphine .....	gr. j.

Triturate, mix, divide into ten powders, and give one every half hour. At the same time, give the patient freely of rice coffee, made by scorching the rice and preparing it as common coffee. If the disease assumes a periodic character, some of the antiperiodic compounds should be given for the purpose of interrupting its periodicity. After the vomiting and purging cease, mild alteratives should be given, as Euonymine, Hydrastin, &c. The diet should consist of rice, dropped eggs, broiled beef, &c. The patient should avoid exposure to the sun, and violent exercise, until completely recovered.

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## CHOLERA, EPIDEMIC OR CHOLERA ASPHYXIA.

This disease began to excite general attention in 1817. It commenced in Bengal in India, from which place it has scarcely been absent since. In 1818 it passed on to the Coromandel coast, and in the same year to Malabar, the Burmese Empire, Sumatra and Ceylon. In 1820 it spread

to China, and successively throughout the larger portion of Eastern Asia, and to the islands of the Mediterranean, to Arabia, Mesopotamia and Syria. In 1821 and in 1822 to Persia. In 1831 it appeared in Prussia and in Austria. In June of the same year it appeared in St. Petersburg, in October at Hamburg and London. On the eighth of June, 1832, it first made its appearance on the American Continent in Quebec, and in a few days at Montreal. On the 24th of June in New York, on the 3d of July in Albany, on the 5th of July in Philadelphia, on the 30th of September in Cincinnati, from whence it spread to Madison, Louisville, St. Louis, Maysville, Wheeling, and made its way to most of the important towns in the United States.

It reappeared in America in 1848, where it has prevailed as an epidemic or in a sporadic form ever since. Its fearful ravages and well-known fatality, have elicited on the part of the medical profession, the most anxious inquiries, in regard to its cause and *pathology*.

#### SYMPTOMS.

Malignant cholera, like most other epidemic diseases, presents a great diversity of symptoms. Its attack is usually violent and sudden, but mostly preceded by certain premonitory symptoms, such as a furred tongue, diarrhæa, with a complete loss of the digestive powers, and sometimes with headache and ringing in the ears. After these symptoms have continued for a longer or shorter time, the patient is attacked with violent Cardialgia or heart-burn, soon followed by nausea and vomiting, with a profuse colliquative diarrhæa. The discharges from the stomach and bowels resemble rice water. These symptoms are soon followed by great weakness and sense of exhaustion.

The powers of locomotion are speedily arrested, and



spasms affecting the whole of the muscles of voluntary motion, but particularly those of the arms and legs, come on. The pulse becomes small, weak, and accelerated, the respiration labored, the tongue flat, white, and moist. These symptoms are soon followed by a sense of pain, and burning heat in the stomach, and great desire for cold drinks. The skin becomes cold, corrugated, and covered with a clammy sweat. The lips, limbs, and at times the entire body, have a peculiar livid hue.

The pulse decreases until it is no longer felt at the wrist, the respiration is slow and feeble, the breath is cold, the eyes are sunken, and surrounded by a livid circle. At this stage there is no secretion of the bile and urine, and the vomiting, purging, and spasms abate. The powers of the mind seem unimpaired, for the patient continues to answer questions freely; but he frequently expires in this stage suddenly and without a struggle.

The limits of this work will not permit me to enter into the details of the different varieties of this disease; but suffice it to say, it often runs an entire course to a fatal termination, without vomiting or cramp, but characterized by the peculiar diarrhæa. Again the diarrhæa may be absent, and the vomiting be the principal symptom. The rice water evacuations, together with the excessive prostration, are sufficient to distinguish it from cholera morbus.

#### TREATMENT.

The indications to be fulfilled in the treatment of Cholera, are to arrest the diarrhæa and vomiting, and to produce reaction, or to equalize the circulation, by inducing the blood from the deep-seated, to the superficial capillary vessels. For the purpose of arresting the vomiting and diarrhæa, small doses of Camphor, Capsicum, and Morphine, should be given every ten or fifteen minutes, in a small quantity of Neutralizing Mixture: say,

R Pulv. Camphor.....	gr. v.
Capsicum .....	gr. x.
Morphine .....	gr. j.

Triturate, mix, divide into ten powders, and give one every fifteen or twenty minutes in one half to one teaspoonful of Neutralizing Mixture, until the nausea and vomiting cease. At the same time the patient should be placed in bed in a recumbent posture, which should be maintained during the entire active stage of the disease. The body should be thoroughly bathed in equal parts of lye water, and Tinct. of Capsicum. Also apply sinapisms along the spine, calves of the legs, abdomen and arms. They should be applied hot, made up of good ground mustard, and wet with hot vinegar. If there is thirst, hot rice coffee should be freely given. Also toast water and essence of beef, prepared as directed in the treatment of typhoid fever. If the nausea, vomiting, and diarrhæa, do not yield to the above treatment, the following compound may be given :

R Tinct. of Prickly Ash Berries.....	℥ij.
Neutralizing Mixture.....	℥ij.
Tinct. of Capsicum.....	℥ij.

Mix, and give one teaspoonful in hot peppermint sling every five or ten minutes. Also inject the bowels with the following mixture :

R Starch Water .....	Oss.
Tinct. of Xanthoxilin Berries.....	℥ij.
Morphine.....	grs. iij.

Mix, and give six ounces as an injection after each passage from the bowels. If reaction should not follow these measures, hot brandy toddy may be given in connection with them every half hour. If there should be cramp with the vomiting and diarrhæa :

R Gelsemin .....	gr. ij.
Hyosciamin.....	gr. j.
Pulv. Camphor.....	gr. ij.
White Sugar .....	gr. xxx.

Triturate, mix, divide into ten powders, and give one every half hour, or oftener, as the case seems to indicate.

If the discharges continue, and the patient be prostrated, the following compound will often be successful :

R Rhusin .....	gr. xij.
Quinine .....	gr. x.
Piperine .....	gr. xx.
Hydrocyanic acid.....	gutt. iij.
White Sugar.....	gr. xxx.

Mix, triturate, divide into twenty powders, and give one every thirty minutes. If the sinapisms produce too strong counter-irritation, they should be taken off, and large hot packs applied in their place. If the reaction should be followed by fever, Aconite should be given in quantities sufficient to control the circulation, and maintain moisture of the surface.

Where the patient has passed into the collapsed state, the following compound is valuable :

R Xanthoxylin .....	gr. xx.
Piperine .....	gr. x.
Oil of Capsicum.....	gutt. x.
White Sugar.....	gr. xxx.

Mix, divide into ten powders, and give as often as the symptoms indicate the necessity.

Shocks of electricity, passed through the stomach and liver, have been reputed of much value. Also highly stimulating diuretics, such as oil of Turpentine, Hemlock, Wintergreen, &c.

The following compound was used with much success by my colleague, the late Dr. Hotchkiss :

R Chloroform .....	℥ii.
Tinct. of Camphor .....	℥ii.
Tinct. of Opium .....	℥i.

Mix, and give from ten to twenty drops every twenty or thirty minutes, as the case may be. As soon as the active stage has passed off, the patient should take freely of fluid nutriment containing the elements of the blood, for the purpose of restoring its exhausted condition. Also, he should remain quiet and in bed, and avoid both mental and physical exertions.

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## SMALL-POX, OR VARIOLA.

### SYMPTOMS.

The premonitory symptoms of this disease do not vary much from those of ordinary bilious fever.

It is generally preceded by more or less languor, anorexia, headache, and constipation of the bowels. When these symptoms have continued for two or three days, the patient is seized with violent pain in the back, increased pain in the head and limbs, great restlessness; the pulse becomes accelerated, and the skin is hot and pungent. The eyes are suffused, and in some cases the fever is alternated with rigors or chills. On the fourth or fifth day of the disease, small red spots make their appearance on the face and neck, which gradually diffuse themselves over the entire body.

The eruption is at first pustular, but in the course of eight or ten days becomes vesicular at the apex, yet still remaining pustular at the base. The vesicular portion of the pustule has a cupped appearance, while the base remains white and opaque. Maturation commences from the tenth to the fifteenth day, at which time the pustules become covered with a mahogany-colored scab, terminating in desiccation and desquamation, and leaving a deep

pit. At this stage the patient generally has a fresh attack of fever, called the secondary fever. When the pustules are very numerous, and run into each other, the disease is called confluent small-pox. This is decidedly more violent than the simple form.

There is extensive œdema of the face and lower extremities, and inflammation of the fauces, lungs, and in some instances, the brain; and the disease not unfrequently terminates in consumption, blindness, and ulceration of the intestines.

#### TREATMENT.

In the treatment of small-pox, much diversity of opinion exists among eclectic physicians; but the treatment about to be described has not only proved universally successful in my own practice, but in that of several of my colleagues, who have had the most ample experience in this disease.

If called in the early stage, the first thing to be done is to give the patient an active cathartic of Podophyllin and Antibilious physic. The patient should then take a thorough spirit-sweat, after which the body should be thoroughly bathed in hot lye water, and the patient placed in bed, in a room well ventilated. The following compound should then be given :

R Bayberry Bark, Pulv. ....	℥ss.
Ginger, Pulv. . . . .	℥j.
Macrotys, Pulv. ....	℥ij.
Capsicum . . . . .	℥j.

Mix, put it in one quart of water, steep for fifteen or twenty minutes, strain, sweeten, and give two or three tablespoonfuls every hour during the development of the disease. If there is fever, give Aconite to control it, and small doses of diaphoretic powders at night to procure rest, if necessary. The surface should be bathed in lye water and whiskey three or four times a day.

If the pustules should not fill well, and the strength of

the patient should fail, small doses of equal parts of Hydrastin and Quinine should be given three or four times a day. Also, give milk punch, beef tea, and such other articles of diet as are easy of digestion and nutritious. Collodion should be applied as a wash morning and evening, to prevent being marked by the eruption. If the disease be of the complicated variety, the constitutional symptoms will require more attention.

If the lungs become affected either by congestion or inflammation, they should be relieved by Lobelia and Capsicum. If the liver is thus diseased, Euonymine and Lep-tandrin may be used. If the glands of the bowels should become diseased, Hydrastin and the Nitrate of Silver pill as directed under the head of Typhoid Fever, should be given.

The fever should be controlled as in the simple form, and the patient's strength maintained by the use of beef tea, wine, porter, vegetable tonics, Chalybeates, &c.

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### RUBEOLA, OR MEASLES.\*

In our humble opinion, this is both a contagious and infectious disease, affecting, in this climate, children and adults with almost equal severity; the disease is inflammatory, affecting at once the skin and gastro-pulmonary mucous membrane; in which, after catarrhal fever has continued about three days, a rash appears on the skin, at first in small stigmatized dots, not unlike flea-bites, which presently coalescing, form patches of a crescent or semi-lunar form; first on the face, and thence spreading gradually downwards over the whole body and limbs, at the end of four days they disappear by desquamation of the cuticle. In short, the symptoms which usher in an attack of measles, are the symptoms of coryza and catarrh.\*

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\* Massie's Practice of Medicine.



## TREATMENT.

In the great majority of cases, but little treatment is necessary, save to have the patient confined to the house, which should be kept of an agreeable temperature, and freely ventilated. The clothing should be changed daily, and the bowels kept regular by small doses of Neutralizing Mixture and Leptandrin.

Should symptoms of Pneumonia, Bronchitis, or Laryngitis make their appearance, an emetic of Lobelia and Sanguinaria should be administered, together with the warm bath and laxative enema. As soon as the effects of the emetic have passed off, the following compound should be given, if a child over eight years of age; if younger, in proportion to the age :

R Triturated Belladonna.....	gr. x.
Sulphate of Cinchonin .....	gr. xx.
Triturated Leptandrin .....	gr. xx.

Mix, divide into ten powders, and give one every two hours; also give freely of warm sage tea.

If there should be fever, and pain in the head, five drops of Aconite, added to three ounces of water, and a teaspoonful given every half hour, will soon control it.

If, as sometimes happens, the patient should be seized with convulsions, small doses of equal parts of Lobelin and Scutellarin, given every ten or fifteen minutes, will relieve them.

The surface should be frequently sponged, and if there is heat in the head, moderately cold packs should be applied and continued until the head is relieved.

The diet should be light, and taken in small quantities. If Ophthalmia makes its appearance during the disease or afterwards, mild zinc ointment should be used, and the eyes should be frequently bathed in warm milk and water.

## VARICELLA, OR CHICKEN-POX.

This is a contagious disease, and in its first appearance, bears some resemblance to small-pox.

## SYMPTOMS.

Small, pointed, transparent red vesicles, some of which become pustular. They run their course in from five to six days, without producing any very marked constitutional disturbance.

## TREATMENT.

The diet should be regulated, and regularity of the bowels maintained. If fever arises, give Aconite in small quantities, and a gentle purgative of Euonymine and neutralizing mixture.

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## MANIA-POTU, OR DELIRIUM TREMENS.

This disease in some of its symptoms, resembles inflammation of the brain. It is caused by the use of Alcoholic drinks.

## SYMPTOMS.

Constant wakefulness, and motion of the hands and arms, and continual delirious talk. The whole body is in a state of tremor, wrongs are imagined, injuries apprehended, and the patient constantly beholds imaginary images, which terrify his mind, producing great mental excitement. This disease is easily distinguished from Pleuritis, by the softness of the pulse, the flushed face, and the habits of the patient.

## TREATMENT.

In this disease it is necessary to continue the use of stimulants, in a moderate degree. The patient should take warm whiskey toddy, mixed with starch water, often enough to maintain a decided influence of the spirits upon the brain. At the same time give freely of beef tea, wine whey, soft boiled eggs, &c. If the disease does not yield to the above treatment, give the following compound :

R Morphine ..... gr. ij.  
 Capsicum..... gr. xx.

Divide into ten powders, and give one every two or three hours till the disease yields.

Or,

R Scutellarin..... gr. xx.  
 Hyosciamin ..... gr. iij.  
 Cypripedin ..... gr. xx.

Triturate, mix, divide into ten powders, and give one every hour. When the disease becomes manageable, the use of alcoholic drinks should be discontinued, and the patient warned against the use of a drug, the effects of which are fraught with so much evil. During the treatment, the bowels should be kept regular, by the use of mild stimulating alteratives, and the skin thoroughly cleansed by bathing.

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## HYDROCEPHALUS, OR DROPSY OF THE BRAIN.

## SYMPTOMS.

When the disease comes on moderately, the patient becomes peevish and fretful. If it is a child, which is most frequently the case, there will be frequent extension of the hands to the head, and the sleep will be disturbed

by frightful dreams, causing starting, jumping, and screams.

As the disease advances, there is anorexia, dizziness, vertigo, nausea, vomiting, and delirium.

The pulse is soft and quick, and the tongue is covered with a light coat. In the early stage of the disease, the bowels are costive; but in the latter stage, there is frequently diarrhæa. Paralysis and convulsions often result from this disease.

## TREATMENT.

In the early stage of this disease, Aconite should be given to control the fever and inflammation. After which, a purgative of Podophyllin and Jalapin should be given. Warm water and whiskey should be applied to the head, and sinapisms to the feet and calves of the legs. After the operation of the cathartic, give the following compound:

R Syrup of Marshmallow..... ℥iij.  
Iodide of Potassium..... ℥ij.

Mix, and give one half teaspoonful every hour. At the same time, give two or three tablespoonfuls of strong Buchu and uva ursi tea, and ten drops of sweet-spirits of Nitre every three hours. If there is much debility, connected with periodical symptoms, the following compound may be given, with the above treatment:

R Quinine ..... gr. x.  
Ferrocyanide of Potassium..... gr. j.  
Digitalin..... gr. j.  
White Sugar..... gr. xl.

Triturate, mix; divide into twelve powders, and give one every three hours. The purgative should be repeated, and the strength of the patient maintained by the free use of Iron, vegetable tonics, and a nutritious diet.

## ASCITES, OR DROPSY OF THE ABDOMEN.

## SYMPTOMS.

Swelling of the bowels, and often a fluctuation which may be perceived by laying the hand on one side of the abdomen, and at the same time gently rubbing the other side. This disease is mostly connected with Anasarca, or a collection of water in the cellular tissue, indicated at first by swelling of the feet and ankles towards night, but which disappear before morning. Pressure of the swollen parts with the finger in the evening, produces indentation, which remains for some time. The swelling gradually ascends to the trunk of the body, the arms and the head.

At this time the breathing becomes difficult, the urine is scanty and high-colored, the bowels are costive, the countenance is heavy and bloated, the skin is dry, and has a dirty sallow appearance, there is a dry cough and a slow irregular fever.

When these symptoms have continued for a longer or shorter time, there is generally a deposition of tuberculous matter in the lungs, a hectic fever, and unless the progress of the disease is arrested by timely treatment, death is the result. The use of Mercurials, the suppression of the Catamenia, Chronic ague, improper diet, &c., are among the causes of this disease.

## TREATMENT.

The first object should be to remove the cause. At the same time, means should be resorted to by which the blood may be restored to a natural condition, and at the same time relieve the different tissues from their incumbrance of water. The patient should be placed upon a strong nutritious diet, and should freely use beef tea, porter, &c., and should take the following compound :

℞ Iron by Hydrogen..... gr. **xx**.  
 Syrup of dwarf Elder..... Oss.  
 Cream of Tartar.. .....  $\overline{3}$ ss.

Mix, and give one tablespoonful three or four times a day. Two or three times a week the patient should take a thorough spirit-sweat, and the body should be sponged every morning in warm or cold water, as the condition of the case may indicate.

If the patient's strength will warrant, a cathartic of Jalapin and Cream of Tartar may be given once or twice a week. When the above course has been pursued for a few days, if the patient does not manifest signs of rapid recovery, give the following compound :

℞ Digitalin..... gr. **ijj**.  
 Cinchonine..... gr. **xxx**.  
 Phosphate of Iron..... gr. **xxx**.  
 White Sugar.....  $\overline{3}$ j.

Mix, triturate ; divide into sixteen powders, and give one four times a day in watermelon seed tea.

After these are all taken, the syrup should be resumed, and the vapor bath continued.

Every possible means should be resorted to by which the patient's strength may be maintained.

## PAROTITIS, OR MUMPS.

This is a contagious disease, affecting the Parotid gland.

### SYMPTOMS.

The skin becomes hot and dry, the pulse increases in frequency. The tongue is covered with a thin white coat, the bowels are costive, and the urine is scanty and high-colored. These symptoms are followed by a swelling just



below the angle of the lower jaw, sometimes on one side, at others on both. The swelling increases rapidly for about two days, when it begins to decline.

This disease is frequently transferred from the glands of the neck to the mammary glands, in the female, and to the testicles of the male.

#### TREATMENT.

If there is much fever in the active stage, the body should be bathed in warm lye water, and Aconite given in quantities sufficient to subdue it. The patient should keep quiet, and in bed. If the bowels are confined, a mild dose of Antibilious Physic may be given. If there should be a metastasis of the disease, a stimulating liniment should be applied, such as Tinct. of Capsicum and Myrrh, and a mild alterative of Euonymine given two or three times a day.

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### EPILEPSY.

#### SYMPTOMS.

The patient falls suddenly, and is seized with convulsions. The features are distorted and fixed, the senses are suspended, and the subject paralyzed. During the struggle, mucus, commingled with bubbles of air, issues from the mouth. The breathing is generally hurried, and the pulse is feeble and frequent. These attacks return at stated periods, and generally increase in severity as the patient grows older. The disease is frequently developed by irritation from teething, worms, suppression of the menses, blows upon the head, spermatorrhæa, &c.

## TREATMENT.

In the early stage of the disease, but little need be done save to remove the cause. But after the disease has become established, the convulsions will continue, although the cause be removed.

In such cases the intermittent and antiperiodic treatment is that only which has proved successful in my hands. While the patient is laboring under the paroxysms, the following mixture should be given :

R Fluid Extract of Scutellaria,	} ad libitum.
“ “ of Lobelia,	
“ “ of Cypripedin,	

Equal parts. Mix, and give from ten to twenty drops every ten or twenty minutes, until the convulsions cease. Then open the bowels by a mild, neutralizing physic, and the skin by tepid baths, after which give the following compound :

R Chinoidin .....	gr. xxx.
Fiburine .....	gr. xx.
Quinine ....	gr. x.

Mix, divide into twenty powders, and give one three times a-day. Continue the powders between the first four or five paroxysms, and relieve the patient during the paroxysms by the anti-spasmodic mixtures, followed by the cathartic.

If the above treatment does not interrupt the paroxysms in the course of eight or ten weeks, the following mixture may be given between the spasms :

R Port Wine .....	Oss.
Hydrocyanic acid .....	gutt. xx.
Quinine .....	gr. xx.
Iron by Hydrogen .....	gr. xxx.

Mix, and give one teaspoonful three times a-day. The patient's bowels should be opened by mild purgatives. The mind should be kept cheerful, and the diet should be nutritious, and of easy digestion. The antiperiodic and

intermittent treatment should be pursued until a cure is effected, which will be the case in the course of time, unless there is some organic lesion of the brain.

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## APOPLEXY.

Sanguineous Apoplexy is the effusion of blood into the substances of the brain. Traumatic, or Apoplexy caused by blows on the head, is the effusion of blood into the membranes of the brain.

### SYMPTOMS.

Apoplexy is generally preceded by giddiness, pain and swimming in the head, ringing in the ears, and laborious respiration. In Sanguineous apoplexy, if the person does not drop dead at once, he gradually becomes stupid, until he passes into a profound sleep; the face is swollen, the eyes are fixed, the blood-vessels about the neck beat rapidly and forcibly, the breathing is sonorous, and it is impossible to arouse the patient from his state of lethargy.

### TREATMENT.

Ligatures should be placed around the arms close to the shoulder; also, around the legs at their connection with the body. They should be so adjusted as to admit of the passage of the blood through the arteries, but to prevent its return through the veins.

If the patient can swallow, a large dose of antibilious physic should be given. The feet should be placed in hot water, and cold water applied to the head. If the circulation continues to be rapid, *Veratrum* should be given in quantities sufficient to moderate its action.

The ligatures should be kept on until the patient appears entirely relieved, but should be tightened or loosened according to circumstances. If symptoms indicate hemor-

rhage to any considerable extent, small doses of Digitalin should be given three or four times a day, in connection with Iodide of Potassium. The bowels should be kept regular, and the diet mild.

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## CHOREA, OR ST. VITUS' DANCE.

### SYMPTOMS.

There is a lameness of one leg, which is partly deprived of its natural motion. The arms are next affected, and are thrown into various contortions. The muscles of one side of the face have a constant involuntary motion. The appetite is lost, and the bowels become irregular.

### TREATMENT.

R Scutellarin ..... gr. xxx.  
 Cyripedin ..... gr. xx.  
 Carbonate of Iron ..... ʒij.  
 Port Wine ..... Oj.

Give one tablespoonful three times a day. The bowels should be kept open with small doses of Euonymine, and the surface should be bathed with tepid water every morning. If the disease should be caused by suppression of the menses, Macrotin should be given in connection with Iron. If by worms, Santonine and Podophyllin. If by ague, some of the antiperiodic compounds may be given.

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## PARALYSIS, OR PALSY.

If the palsy is confined to one side of the body, it is called Hemiplegia. If to the lower half, Paraplegia.

### TREATMENT.

When the palsy attacks the heart, lungs, or any other vital organ, it soon terminates in death. But when it

arises from injuries of the spine, effusions into or softening of the brain, or in a deficiency of nervous fluid, the following treatment may be resorted to with hopes of success. First. The patient should be enjoined to remain quiet in bed, and if an injury to the spine is the cause of the disease, the irritating plaster should be applied along the spine. The bowels should be acted upon by giving small doses of antibilious physic, and a mild current of electricity should be passed from above the part of the injury through the paralyzed parts. The diet should be sufficient to maintain an ordinary degree of health. A liniment should be applied to the palsied part, composed of the following substances :

R Oil of Origanum.....	℥ij.
“ Capsicum.....	℥j.
“ Stillingia.....	℥ij.
“ Alcohol .....	Oj.

Mix, and bathe the affected part three or four times a day, following the same by brisk friction. The patient should take from one to three drops of the Tinct. of Rhus Toxicodendron from one to three times a day. If the disease occurs from injuries of other parts of the body, a similar course should be pursued, both as regards the electricity and counter-irritation. If there should be softening of the nervous centres, or brain, from one to five drops of the Tinct. of Phosphorus should be given three or four times a day, in connection with chalybeates and vegetable tonics.

This course should be persisted in for some length of time, unless the disease yields. In quite a number of cases with which I have been familiar, recovery has taken place after a lapse of more than a year's treatment.

## TETANUS, OR LOCKED JAW.

This disease generally arises from wounds, but occasionally it is a symptom of other diseases.

## SYMPTOMS.

Stiffness in the back of the neck, difficulty of swallowing, rigidity of the muscles of the lower jaw, also of those of the spine, and sometimes nearly all the muscles of the body are involved.

## TREATMENT.

If this disease is caused by a wound, it should be thoroughly burnt with caustic, and a poultice applied until a complete discharge is produced. At the same time the patient should take a lobelia emetic, followed by *Euonymine* and *Jalapin*, until it operates as an active cathartic. After which, give the following compound :

R	Dioscorine.....	gr. xx.
	Scutellarin.....	gr. xxx.
	Quinine .....	gr. xx.

Mix, divide into ten powders, and give one every two hours until all are taken. If the disease is not removed, the *Lobelia* emetic should be repeated, and again followed by the powders. The skin should be kept cleansed by lye water baths, and a free diet allowed.

The above treatment has proved triumphantly successful in my hands in several well-marked cases of this disease.

## HYDROPHOBIA.

This disease is caused by the bite of rabid animals. The wound generally heals rapidly, and it is not until



twenty or thirty days have elapsed that any pain is felt in the wound.

#### SYMPTOMS

Anxiety, restlessness, nervousness, loss of sleep, horror of water, and finally convulsive spasms, are the prominent symptoms of the affection.

#### TREATMENT

In the treatment of this disease, much depends upon thoroughness and perseverance. The wound should be canterized with caustic Potassa, and caused to discharge freely for five or six weeks. The patient should take an active Lobelia emetic, followed by a brisk Podophyllin cathartic, and a spirit sweat. After which, the following compound should be given :

R Scutellarin.....	gr. xx.
Cypripedin.....	gr. xx.
Lobelin.....	gr. v.
Quinine .....	gr. xxx.

Mix, divide into ten powders, and give one every two hours until all are taken. At the same time, a strong decoction of Plantain should be drunk freely during the day. Lupulin and Hyoseiamin should be given at bedtime, to produce sleep. The emetic and other remedies should be continued until the patient is entirely relieved from the disease.

This treatment has proved successful in the hands of several eclectic physicians.

#### DIABETES, OR SACCHARINE URINE.

This disease has its primary cause in the stomach.

## SYMPTOMS.

It is generally preceded by debility, anorexia, dry skin, pain in the lumbar region, and great thirst, with alternate attacks of chills and fever. On examining the urine, it is found to have a sweetish taste and smell.

## TREATMENT.

Give one grain of Aletrine in a tablespoonful of brandy toddy three times a day, and keep the surface freely bathed in warm broke water and whiskey.

In the early stage of the disease, this treatment, if persisted in for three or four weeks, will generally effect a curc. But in the more advanced stage, where the kidneys have become organically affected, the irritating plaster should be applied over that region, and the following compound given :

R Xanthoxylin.....	gr. x.
Populin .....	gr. x.
Prunin ....	gr. x.
Sach. Alba.....	gr. xxv.

Mix, divide into twelve powders, and give one every three hours. After which, give the following :

R Syrup of Sugar.....	℥ij.
Tinct. of Capsicum.....	℥ij.
Muriated Tinct. of Iron.....	℥j.

Mix, and give one teaspoonful three times a day. If there are intermittent symptoms, some of the antiperiodic compounds should be given, followed by bitters made of Brandy and Aletris Farinosa.

The bowels should be kept regular, and the stomach evacuated with Sanguinarin, and Lobelia if indicated.

## RHEUMATISM.

Acute rheumatism commences with weariness, shivering, quick pulse, restlessness, thirst, and fever. The patient soon complains of pains in some of the joints, which increase by motion. The parts swell, and have a red and inflamed appearance, the tongue is covered with a heavy white coat, the bowels are costive, the urine scanty and high-colored.

## TREATMENT.

R Podophyllin..... gr. ij.  
 Xanthoxylin ..... gr. iij.  
 White Sugar ..... gr. xxx.

Mix, triturate, and divide into eight powders. Give one every hour until it operates as a cathartic. After which, give the following compound :

R Sanguinarin..... gr. ij.  
 Iridin ..... gr. j.  
 Quinine ..... gr. x.

Mix, divide into ten powders, and give one every three hours. The body should be thoroughly bathed in strong salt and water, and the inflamed joints packed with hot cloths. If the disease does not yield, a pill may be given composed of the following materials :

R Ext. Hyosciamus..... gr. ij.  
 Ext. Indian Hemp..... gr. xx.  
 Capsicum ..... gr. x.

Mix, form a mass, and make three-grain pills. Give one every three or four hours. If there is fever, Aconite or Veratrin should be given to control it. If the rheumatism is of a chronic character, give the following :

R White Pine Turpentine..... gr. xxx.  
 Extract of Poke Root ..... gr. x.  
 Macrotin ..... gr. v.  
 Apocynin ..... gr. x.

Mix, form a mass, and make three-grain pills. Give one every five hours. Animal broths should be taken freely as a diet. The kidneys should be stimulated by mucilaginous diuretics, and stimulating liniments should be applied to the affected limbs.

Much care should be taken not to induce metastasis to the heart; but if that should occur, Aconite, compound syrup of Stillingia, and Iodide of Potassium are the remedies.

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### TRACHEITIS, (CROUP, OR INFLAMMATION OF THE TRACHEA.)

This disease is divided into two varieties, the spasmodic and pseudo-membranous. In the spasmodic form, there is a sudden contraction of the Trachea, owing to a slight cold, or the transmission of irritation to that organ from the stomach and gums in teething. The only treatment required in this form of the disease, is some active anti-spasmodic. It may be distinguished from the Pseudo-membranous variety, by its sudden appearance at night, when the child was apparently well during the day, and by its almost as sudden disappearance on the administration of a few drops of Tinct. of Lobelia, and the application of a wet pack to the neck.

The symptoms of the spasmodic kind, are a sudden hoarse cough, followed by a whistling and difficult respiration.

The symptoms of the pseudo-membranous kind, are very insidious. The child is irritable, restless, and peevish, and at times has a fever. He will also be observed to spit frequently. These symptoms, in the course of from twenty-eight to thirty-six hours, will be followed by a slight cough, which increases, and the voice soon becomes hoarse.

The disposition to spit also increases, and the sputa, if examined, is found to be of an albuminous character, thus clearly indicating the nature of the disease.

The symptoms are all aggravated at night, the pulse becoming quick, and the breathing laborious; but in the morning, they are much ameliorated. In the afternoon, the symptoms again appear, and are greatly aggravated.

The child throws his head back, and frequently grasps at the neck, the expectoration ceases, the breathing is more labored, and the pulse more frequent. He is unable to speak above a whisper, and unless relieved by proper treatment, soon becomes stupid and expires.

#### TREATMENT.

The treatment here recommended, is of a very simple character, and rather belongs to Prof. J. G. Jones than to myself. And as all other methods with which I have been familiar have almost universally failed, while this has always proved successful, I most confidently recommend it to the profession as the only radical cure ever offered for this hitherto almost invariably fatal disease.

In the early stage, a thorough Podophyllin and Cream of Tartar cathartic should be given, the feet should be placed in hot water, and a cold wet pack applied to the throat. The pack should be changed sufficiently often to keep it cold. After which, the patient should be put upon a mild acetic syrup:

R Sanguinaria Pulv.....	ʒj.
Acetic acid.....	ʒiij.
White Sugar .....	ʒiij.

Mix, steep for fifteen or twenty minutes, and give one half teaspoonful every half hour. This prescription should be continued as long as any symptoms of the disease remains. If the treatment is not commenced until the disease is far advanced, the cathartic should be omitted, and the syrup

given at once. The bowels should be moved by laxative enema, and the surface frequently sponged in tepid water.

If the disease proves obstinate, two or three antiperiodic powders should be given during the Apyrexia. The syrup should also be continued. There should be no more of the syrup given than the stomach will tolerate.

The strength should be maintained by a generous diet, and all excitement should be avoided.

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## WORMS.

According to the classification of the entozoist, the following are the different varieties that infest the alimentary canal :

- 1st. *Ascaris Lumbricoides*, or common round worm.
- 2d. *Asearis Vermicularis*, or thread worm.
- 3d. *Trieocephalus Dispar*, or long thread worm.
- 4th. *Tænia Solium*, or common tape worm.
- 5th. *Tænia Lata*, or broad tape worm.

The most common varieties of worms met with in this country, are the common round worm, mostly found in the small intestines, and the short thread worm, which inhabits the rectum or lower portion of the bowels.

## SYMPTOMS.

The symptoms of worms are various. The most common are frequent flashes of fever, which disappear in a few hours ; irregular appetite, irritable temper, symptoms of irritation about the fauces, tumefaction of the glands, frequent changes in the appearance of the urine, which is at one time scanty, and of a milky appearance ; at others, copious and limpid. The irritation will be so great at times as to affect the brain, and convulsions follow. If the



worms infest the rectum, there will be constant itching and uneasiness of that part, and at times a slight sanious discharge.

## TREATMENT.

For the long round worm :

R Santonine .....	gr. vj.
Podophyllin .....	gr. j.
White Sugar .....	gr. xxx.

Mix, triturate, divide into twelve powders, and give one every three or four hours until they act upon the bowels. If this should fail, the following mixture may be given :

R Neutralizing mixture .....	℥ij.
Essence of Wormwood .....	℥j.
Tinct. of Aloes .....	℥ss.
Santonine .....	gr. x.

Mix, and give one teaspoonful three times a-day.

Or —

R Santonine .....	gr. x.
White Sugar .....	gr. xxx.

Triturate, divide into ten powders, and give one every night on going to bed. After two or three days, give a mild purgative. If the patient is troubled with *Ascarides*, in addition to the above, injections should be given :

R Santonine .....	gr. xx.
Hydrastin .....	gr. xx.
White Sugar .....	℥j.
Warm water .....	℥iv.

Mix, and give as an injection every morning and evening. If either variety of the tape-worm afflicts the patient, the following mixtures may be given :

R Fresh Pumpkin-seeds after the shell is taken off ...	℥ij.
White Sugar .....	℥ij.

Bruise and mix. Give one teaspoonful every half hour until all is taken. After which give a brisk purgative of Podophyllin. If the first mixture does not succeed, it may be repeated. Or the following compound may be given :

R Oil of Male Fern .....	ʒij.
“ Turpentine .....	ʒij.
“ Red Cedar .....	ʒj.
“ Worm Seed .....	ʒij.
Castor Oil .....	ʒij.

Mix, and give one teaspoonful every half hour until it operates upon the bowels. During the treatment for the tape-worm, the patient should abstain from food; and if the passage of the worm is commenced, it should be carefully wound around a stick, to prevent it from being broken.

## ANEMIA, OR CHLOROSIS.

### SYMPTOMS.

The symptoms of this disease are paleness of the skin and mucous surface, and a peculiar white appearance of the conjunctiva. When the disease has advanced for some time, the countenance assumes a sallow and bloated appearance. The patient is feeble, and cannot bear much exertion. The circulation is irregular and weak; the respiration, although natural when the patient is quiet, becomes labored on the least exertion, and there is frequently violent palpitation of the heart.

The nervous system is most disordered; vertigo, dizziness, and feelings of fainting are not uncommon. At times there are violent neuralgic pains in the head, back, limbs, and side. In females the menses are almost entirely suppressed or altogether wanting. The blood in this disease is found to be deficient in iron.

### TREATMENT.

R Carbonate of Iron .....	ʒij.
Port Wine .....	Oj.
Common Salt .....	ʒij.
Hydrastin .....	ʒj.

Mix, and give one teaspoonful three times a day. If the patient is a female with partial or complete suppression of the menses, the following pill should be given :

R Senecin .....	gr. xx.
Macrotin .....	gr. v.
Vallee's mass .....	gr. xxx.
Podophyllin .....	gr. j.

Mix, form a mass, and make three-grain pills. Give one in connection with the wine tonic three times a-day. The diet should consist of rich animal broths, and the patient take plenty of out-door exercise. The bowels should be kept open by the use of some mild laxative, such as Apocynia and Euonymine. If the disease does not yield, the following compound may be given :

R Brandy ... ..	Oss.
Water .....	Oss.
Phosphate of Lime .....	℥ij.
Iron by Hydrogen .....	gr. xxx.
White Sugar .....	℥iv.

Mix, and give one tablespoonful three times a-day. The above treatment, together with cold baths, followed by a reaction, will generally prove effectual.

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## MILIARY FEVER

Is characterized by an irregular eruption of round vesicles of the size of a millet-seed, upon slightly elevated and inflamed patches of cuticle.

It mostly commences with rigors and languor, a quick pulse, hot and dry skin, and thirst. The eruption generally appears about the fifth or sixth day from the commencement of the febrile attack. Previous to its appearance, there is a sense of pricking or itching of the skin. The patient complains of great præcordial oppression, but is soon relieved by a profuse perspiration, and in the course

of from three to five days the vesicles form into small scales, and fall off.

The eruption is generally distinct, but is sometimes confluent. It is said rarely to affect the face, and different crops may appear in the same fever. It is mostly a symptomatic disease, and occasionally appears in the course of nearly all low forms of fever;—although it may be idiopathic when it attacks those who have been previously weakened by fatigue, or a long exposure to damp and malarious atmosphere; or who have been for a long time confined to a bad regimen.

#### TREATMENT.

As this disease is mostly dependent upon constitutional debility, caused by some previous difficulty, it will be of the first importance to ascertain the cause, and remove it; after which the skin should be thoroughly bathed in warm lye water, and small doses of Aconite administered until a free perspiration is produced. For the purpose of stimulating the secretions, and as a mild purgative, the following compound should be given:

Euonymin .....	gr. iij.
Irisin .....	gr. ij.
White Sugar .....	gr. xxx.

Triturate, mix, divide into ten powders, and give one every hour until all are taken, or until they act upon the bowels. If the disease does not yield to this mild treatment, small doses of Quinine and Iron together, with an active, stimulating, and nutritious diet, should be resorted to. When the active stage of the disease is passed, the patient should be allowed a liberal quantity of porter, in connection with vegetable tonics and chalybeates. If the disease is connected with a scrofulous diathesis, the compound syrup of Stillingia, with Iodide of Potassium, should be given until the patient is entirely restored.

## ROSEOLA, OR ROSE-RASH,

Is a fever attended with a rose-colored efflorescence, and not contagious. It has often been confounded with measles and scarlet-fever. It mostly depends upon indigestion, and seldom requires medical treatment. The diet should be regulated, and if the fever is troublesome, small doses of Aconite, and a gentle purgative of Neutralizing mixture, may be given.

## URTICARIA, OR NETTLE-RASH,

Is characterized by circular elevations of the cuticle, of a red color, with a white spot in the centre.

The eruption is generally preceded by gastro-intestinal irritation and fever. There is frequently restlessness, languor, and anorexia. If the eruption is extensive, the patient suffers much from the itching and heat which it occasions. This disease is frequently caused by excess in eating and drinking, also by undue heating of the blood. It may continue for an indefinite period, and reappear whenever the stomach becomes deranged.

## TREATMENT.

The patient's diet should be well regulated, and all excesses carefully avoided. The surface should be freely bathed, two or three times a week, and a mild vegetable alterative and tonic be given. If the disease assumes a periodic character, as it sometimes does, an antiperiodic should be administered, succeeded by the following compound :

R Cream of Tartar.....	gr. xxx.
Leptandrin .....	gr. xx.
White Sugar .....	gr. xxx.

Triturate, mix, divide into ten powders, and give one three times a day.

## THE PLAGUE.

This disease is regarded as nothing more than a malignant typhus fever, attended during its course, by buboes and carbuncles.

Mackintosh gives the following diagnostic symptoms of the Plague :

It is ushered in by rigors and oppression, followed by heat of the skin, great prostration of strength, giddiness and headache. The expression of the countenance is besotted, and the eyes have a muddy glistening appearance.

The intellect is sometimes cloudy, at others there is insensibility and fixed delirium.

Occasionally, stupor takes place, and in some instances the functions of the brain remain distinct and clear. The patient in general seems indifferent respecting his fate. The tongue is at first moist, although it is more or less loaded. There is sometimes constipation, at others diarrhæa. The stools are very offensive, and there is constant nausea and vomiting. About the third day from the attack, there is acute pain, followed by redness and swelling in the arm-pits and groins, which terminates in carbuncles and buboes, unless it is immediately relieved. And unless suppuration soon takes place, death speedily follows. It is stated that if the patient survives the fifth day, and the buboes appear well-formed, the patient may be pronounced convalescent. The points of danger in this disease appear to be, the time in which the buboes ought to appear, and the time of maturation. For a full description of this disease, the reader is referred to the writings of Dr. James McGregor, who has described it minutely, as it appears in India and Egypt.



## TREATMENT.

Cullin condemns both blood-letting and purgatives in this disease, and states that the chief object in the treatment should be to relieve the spasms of the extreme vessels. For this, he recommends the application of oil to the surface, and some antispasmodic internally. There can be no doubt that this disease requires a vigorous, stimulating, and antiperiodic treatment from the commencement. From all the information I can obtain, I should make a liberal use of hot alkaline baths, anti-periodics, and a free use of Aconite to control the fever. Also a liberal use of tonics, antispasmodics, and stimulants, with a nutritious diet.

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## DIFFICULT DENTITION.

Few children pass through the process of dentition without more or less suffering, and often a variety of complicated symptoms make their appearance, all depending upon one general cause, viz: dentition. It has long been observed, that children who pass through the period of teething early, suffer less than those whose teeth are longer making their appearance.

The ages at which children cut their teeth are various. There are instances of children being born with full sets of teeth, as is recorded of Richard the Third and Louis Fourteenth. In general, however, the teeth begin to appear between the age of six and eight months. The two centre incisors of the lower jaw, are commonly cut first, and are soon followed by those of the upper, after which the two lateral incisors of the lower, and then those of the upper jaw make their appearance. Between the twelfth and sixteenth months, the intergrinders of the

lower jaw appear, and next in succession are the cuspides or cyc teeth. The others soon follow, so that by the age of two years, the child has its complete set of teeth, twenty in number. The formation of each tooth goes on in a membranous and vesicular sack, which is firmly united to the gum. It is supposed that in tedious and difficult dentition, the sack becomes more vesicular, and is materially thickened. This, together with the pressure of the teeth upon the gums, is supposed to be the only cause of the various ills incident to this period.

The teeth are composed of Phosphate and Carbonate of Lime, Fluoride of Calcium and Cartilage.

On analysis by Berzelius they were found to be composed of

Cartilage and vessels.....	28.0
Phosphate of Lime.....	64.2
Carbonate of Lime.....	5.3
Phosphate of Magnesia.....	1.0
Soda with Chloride of Sodium.....	1.1

According to Lessaigne, it appears that as the teeth become older there is an increase of the Phosphate of Lime, and a corresponding diminution of the Carbonate. From the above facts, it seems the food should contain these elements, to enable the teeth to become perfectly and timely developed. The cause of the diseases so frequently identified with dentition, is a lack of the proper histogenetic material, thereby causing a drain upon the other tissues, which, together with the long-continued irritation of the teeth upon the nerves, produces a train of morbid symptoms, which are attributed to anything but their true source.

The child, under these circumstances, becomes restless, fretful and feverish, the sleep is disturbed, the bowels are irregular, the face is flushed, and in some cases there is slight spasmodic twitching of the muscles, and in others general convulsions.

Sometimes the child becomes troubled with an irritable cough, with wheezing, a hot skin, quick pulse and scanty urine, denoting great irritation of the bronchial and pulmonary tissues. Cutaneous and glandular affections often occur. The sub-maxillary glands are those most commonly affected. Occasionally there is inflammation of the eyes, causing purulent Ophthalmia.

The enumeration of the above symptoms will show the importance of a correct diagnosis in these cases.

#### TREATMENT.

There is no disease in which the ordinary allopathic treatment proves more mischievous than in this.

The poor child has its gums scarified and mutilated to no purpose. In some cases its stomach and bowels are entirely destroyed by the drastic doses of Calomel, Rhubarb, Prepared Chalk, and the like; while in other cases, Opium, Paregoric, Godfrey's Cordial, Bateman's Drops, and a long catalogue of irritants and narcotics, tending still farther to depress the feeble vitality of the child, cause Dropsy of the Brain, Tabes Mesenterica, and Tuberculous Consumption. Now these medicines have not one particle of the aliment needed to build up the structure which is making such extensive drains upon the other tissues, and causing such derangement of the vital powers. The scarifying of the gums frequently produces an irreparable injury to the teeth, by denuding them of their soft enamel, an injury seldom repaired. Hence the frequent premature decay of the teeth. The proper treatment consists in administering in small quantities those elements of which the system is deficient. For instance :

R Phosphate of Lime.....	gr. xx.
Carbonate of Magnesia.....	gr. x.
Phosphate of Iron.....	gr. v.
Simple Syrup.....	℥ij.

Dose, one teaspoonful three or four times a day. If there is fever, a few doses of Aconite, given at intervals of from half an hour to an hour, will be sufficient to control it. If the disease proves persistent, or assumes a periodical character, Quinine may be given in combination with some of the other articles, or alone as indicated. If Bronchial irritation is the prominent symptom, two or three drops of the Tet. of Veratrum may be given every three or four hours until the symptoms subside. If there is diarrhæa, Neutralizing Mixture, with small doses of Gerania, should be given. The surface should be frequently bathed, and the diet should be nutritious and of easy digestion. The Lime, Magnesia and Iron should be continued from time to time until dentition is complete.

Many cases might be adduced to illustrate this mode of treatment, but one will suffice.

In June, 1855, I was called to see a child fourteen months old, in which the teeth had not made their appearance.

The Doctor (Allopathic) had pronounced it to have Pneumonia. It had been afflicted with alternate diarrhæa and costiveness for three months, and on two or three occasions had had convulsions. Its gums had been lanced eight or ten times. I immediately ordered Magnesia, Lime and Iron, with small doses of Quinine, and a good diet, and in three weeks the constitutional difficulties had disappeared, and the teeth had begun to make their appearance. In the course of six months, by the occasional use of the above remedies, the teeth were fully developed, and the child restored to perfect health.

## INFLAMMATION AND ULCERATION OF THE ŒSOPHAGUS.

There is no structure in the human body more exempt from disease than the œsophagus; but when it becomes inflamed, it is quite difficult to detect it until ulceration and constriction take place.

Inflammation may be partial, affecting only a small portion of the œsophagus, and if ulceration occurs, there will be no contraction; but the patient will feel slight pain, and there will be momentary stoppage of the food as it passes on to the stomach. If the whole caliber is inflamed, the difficulty of swallowing will be much greater, not so much owing to the stricture of the œsophagus, as to the constant tendency to vomit. There will be more or less constitutional symptoms, as debility, hot skin, scanty urine, &c. Not unfrequently the entire system materially sympathizes with the local affection.

### TREATMENT

The constitutional symptoms should be removed, and at the same time an irritating plaster should be applied to the throat, or the region of the inflamed and ulcerated parts, and caused to remain until a free discharge ensues. The bowels should be maintained in a soluble state, and the skin freely bathed in hot lye water and whiskey as often as two or three times a week. And the following compound should be administered :

R Syrup of Marshmallow.....	.....	℥ij.
Syrup of Iodide of Iron.....	.....	℥ij.
Compound Syrup of Stillingia.....	.....	℥j.

Mix, dose one teaspoonful three times a day. The diet should be nutritious and easy of digestion, and every possible exertion should be made to maintain the integrity of

the constitution. If the ulceration proves unyielding, a strong solution of Hydrastin, to which may be added a few drops of the Tct. of Iodine, may be taken in reasonable doses three or four times a day.

If the above treatment should not prove successful, the application of a mild solution of nitrate of silver may be made once or twice a week by means of a probang. The above remedies will be sufficient to effect a cure, provided the cause of the disease has received due attention.

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## GASTRODENIA.

Gastrodenia is a neuralgic affection of the stomach, and is closely allied to dyspepsia, and in some instances appearing as one of its symptoms. Sometimes the appetite remains good, but generally it is impaired. There is gnawing pain in the stomach, extending to the back, accompanied with anxiety and sense of constriction, with a strong tendency to vomit. There is constipation of the bowels, and more or less pain in the head. The principal causes of this disease are the long-continued use of indigestible food, very warm or very cold drinks, or the use of Aleoholic drinks, schirrous and cancerous affections of the stomach, &c.

### TREATMENT.

If the disease is dependent, either upon irregularities of eating or drinking, or upon the excess of either, this should be carefully avoided. During the attack, much benefit may be derived from an emetic.

℞ Lobelia Seed Pulv. .... gr. x.

Bayberry Bark Pulv. .... gr. xxx.

Mix, add one half pint of warm water, two tablespoonfuls of milk, sweeten, steep fifteen minutes, and give a wine-glass full every fifteen minutes till it operates freely as an emetic. After which,



R Lupulin.....	gr. x.
Scutellarin .....	gr. xx.
Leptandrin. ....	gr. xxx.

Mix, triturate; divide into fifteen powders, and give one every three or four hours. If the pain still continues in the stomach, small doses of Morphine may be taken at bed-time. The constitutional symptoms should be carefully attended to, and if the disease becomes periodical, one of the antiperiodic preparations should be administered. The diet should consist of animal and vegetable broths, and the body well bathed in warm or cold water as often as three or four times a week.

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### HÆMATEMESIS.

This disease most frequently attacks women, particularly those who are of a plethoric habit, and at times when there is a suppression of the catamenia. Each attack is generally preceded by rigors. Pure blood is seldom vomited, unless caused by internal violence or corrosion of the vessels of the stomach. The blood seldom coagulates, and seems to be the product of passive hemorrhage, or exudation from the minute vessels of the mucous membrane.

The diagnostic symptom of hemorrhage from the stomach is a sense of weight and pain in that region, unaccompanied by cough. Every part of the mucous membrane of the alimentary canal is perhaps equally liable to passive hemorrhagic exudation.

Occasionally the disease is so general as to give rise to a sanguineous cholera. In some instances it is confined to the bowels, the stomach not participating in it. The most alarming intestinal hemorrhage is called *melæna*, and is characterized sometimes by full discharges of black blood, resembling ink mixed with sand; but at others, it is more of a sanguineous character. Hemorrhage from the stomach

and bowels produces great exhaustion, and unless relieved, soon proves fatal. This disease frequently accompanies some form of fever, especially typhoid fever. When the hemorrhage is from the stomach, it is a less fatal symptom than when it occurs from the bowels; yet it rapidly exhausts the patient, and frequently proves disastrous, unless timely relief is given.

## TREATMENT.

In hemorrhage from the stomach or bowels, an infusion of matico, in connection with the ligatures, and hot turpentine and mustard sinapisms, will generally give relief. If the patient is an adult, give two or three tablespoonfuls of a strong tea, made of the matico leaves, every five minutes. At the same time apply the ligatures to the arms and legs; also, a sinapism over the stomach or bowels, as the case may be, made by taking one tablespoonful of mustard, four tablespoonfuls of pulverized slippery elm, and one of oil of turpentine, mixed with hot water, and applied as warm as the patient will bear it. The matico tea should be continued until the hemorrhage ceases, or for one or two hours. If it proves ineffectual, a pill may be given, made as follows:

R Nitrate of Silver .....	gr. j.
Geranin .....	gr. x.
Pulv. Gum Arabic .....	gr. xxx.

Triturate, and make sixteen pills. Give one every half hour while the hemorrhage continues. After which the patient's strength should be well supported by vegetable tonics, iron, and a generous diet. If the hemorrhage should be owing to a suppression of the catamenia, the feet should be immediately placed in a tub of warm water, and a large Galbanum plaster applied along the spine and across the lower portion of the abdomen. Also, ten or fifteen drops of the oil of Erigeron should be given every

fifteen minutes, until the hemorrhage ceases. After which the patient should be treated as directed under derangement of the menses.

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### JAUNDICE, OR YELLOWNESS.

This appearance is owing to the deposit of the coloring matter of the bile in the skin and other tissues and fluids. This substance must be presumed to exist in the blood of the jaundiced patient, and it is claimed to be found in healthy blood. But the prevalent belief is that the bile-pigment is absorbed after having been secreted by the liver: an opinion founded upon the most common cause of jaundice, *i. e.*, the obstruction of the *ductus communis*, or one or more of the branches of the hepatic duct, by a gall stone, or by the pressure of a tumor, &c. But among the most common causes of jaundice is a deficiency of the secreting cells of the liver; consequently no biliary secretion takes place. Jaundice is considered by some as an idiopathic disease, but it is mostly a symptom of some specific difficulty, and for which it serves as a diagnostic symptom. It is a phenomenon of several fevers, *viz.*: bilious remittent and yellow; also of different affections of the liver, gall-ducts, and stomach. When it comes on with indigestion, slight fever, sluggishness, and pain in the hypochondrium, it may be regarded as a functional disease of the liver and stomach. But when it follows violent and spasmodic pain in the region of the liver, it is dependent upon the arrest of gall-stone in the biliary passage. When it precedes delirium or coma and convulsions, it indicates disorganization of the hepatic cells; and when it comes on slowly and lasts a long time, and acquires a dark tinge, it depends either upon organic disease of the liver, or some of the neighboring organs obstructing the discharge of bile into the duodenum. The symptoms of

jaundice, excepting the yellowness, depend much upon the cause of the difficulty, though in all cases the skin is husky and dry; the urine partakes of the color of the skin; the fæces are either of a dough or grey-ash color, and in most cases there is constipation of the bowels. The other symptoms vary in different cases.

## TREATMENT.

The treatment of this disease should depend entirely upon its cause as indicated by the symptoms connected with it. If it depends upon a functional disorder of the liver, the following compound may be given :

Euonymine .....	gr. x.
Podophyllin .....	gr. ij.
Gelsemin .....	gr. j.
White Sugar .....	gr. xxx.

Mix, triturate, divide into six powders, and take one every two hours. After which —

R Phytolaccin .....	gr. vj.
Flour of Sulphur .....	gr. xxx.
Extract Dandelion .....	ʒj.

Make twenty pills, and take one four times a day. The surface should be freely bathed, and the diet should be easy of digestion. After the pills are taken, the following may be given :

R Cream of Tartar .....	ʒij.
Sanguinarin .....	gr. x.
Sulphur .....	gr. xx.
Iron by Hydrogen .....	gr. xx.
Best Gin .....	Oj.

Mix, and take one tablespoonful three times a-day. When the disease is dependent upon the arrest of gall-stone in the biliary passage, a thorough Lobelia emetic should be given, followed by a spirit-sweat and a brisk purgative, as follows :

R Podophyllin .....	gr. ij.
Cream of Tartar .....	gr. x.
Gelsemin .....	gr. ss.

Mix, triturate, and divide into four powders, and give one every two hours until it operates as a cathartic.

If the above prescriptions fail to give relief, they should be repeated at proper intervals.

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## DISEASES OF THE HEART.

The most common disease of this organ is fluttering or palpitation. This may be connected with various structural changes in the organ, yet it frequently exists independent of any such change. "The distinction between organic and functional disease of the heart," says Dr. Walshe, "is far from being easily made. Many of the general rules given for this purpose fail clinically." The inconstancy of functional and the constancy of organic ailment are strongly dwelt upon for examples. But all the subjective and many of the objective symptoms may disappear temporarily in cases of extensive organic disease. The existence of secondary changes, such as sub-cutaneous œdema, congestion of the lungs, &c., commonly proves the cardiac affection to be organic, but not always; for spanæmia, added to nervous palpitation, may induce œdema. If exercise relieves a disturbed condition of the heart, its affection is pronounced to be dynamic only; but if spanæmia exist, exercise may be unbearable. From these remarks of Dr. Walshe, it will be perceived that without much care, functional and organic disease of the heart are liable to be confounded. Indeed, nothing was more common than this, previous to the discovery of physical diagnosis and their complete elucidation by Laennec. And now, without repeated physical examinations, even an adept in this method

of diagnosis may mistake mere irregularity of rhythm for structural cardiac disease; as it is now universally admitted that palpitation, when connected with spanæmia, will not only produce a basic systolic murmur, but a systolic murmur at the mitral apex may be generated by the irregular action of the muscoli papillaries, and even the area of dulness may be extended temporarily, owing to the distension of the cavity of the heart with blood.

#### SYMPTOMS OF DYNAMIC PALPITATION.

According to Laennec, the first impression conveyed by the stethoscope is, that the heart is not enlarged. The sound is not heard loudly over a great extent, but this depends very much upon the thickness of the chest. Laennec states that in nervous palpitation of the heart, the heat of the patient is never sensibly elevated by the increased action of the heart, which is the case in organic disease of this organ. This may be true as a general rule, but is far from being universally so, as my own professional experience has proved. Dr. Walshe states that in nervous affections of the heart, the area of dulness remains unaltered; but that distension to the right of the sternum may occur in prolonged paroxysms. He states also that the first sound is too loud and clear at the mitral apex, and somewhat abrupt and short. The sound is duller and less clicking than is natural at the mid-sternal base. The first sound may be loud enough to be audible both to the patient and to the bystanders at a distance of some inches from the chest. Reduplication of the second sound at the base is common; and a clear metallic ring or a præcordial rub may accompany the shock at the mitral apex.

Prof. Calkins remarks, that in order to form a correct diagnosis, we should recollect that the character of organic disease of the heart is to progress; that of functional to occur at regular intervals; that active exercise almost



invariably aggravates organic, but seldom increases the symptoms of functional; that the physieal signs generally are soon developed, and remain permanent in organic, while they seldom exist—and when they do, they arise from chlorosis—in functional. The rational symptoms, which more frequently occur in nervous disease of the heart, than in functional, are choking in the throat, preeordial anxiety, with faintness and actual syncope, or active pains simulating angina. The pulse beats with increased frequency, and there is a clammy coldness of the extremities, with a flushed face. The fits of palpitation may last for a few minutes, or they may last for hours, or even days.

## TREATMENT.

During the paroxysms, the remedies should be of such character as to lessen their intensity, and, if possible, at the same time to remove the cause. If this cannot be done, the paroxysm should be relieved, and an effort made to remove the cause afterwards. For the purpose of relieving the paroxysm,

℞ Gelsemin.....	gr. j.
Scutellarin .....	gr. x.
Cypripedin.....	gr. xv.
White Sugar.....	gr. xxx.

Mix, triturate; divide into eight powders, and give one every hour until the paroxysm is relieved. At the same time, the feet should be bathed in warm water, and the patient should avoid all mental and bodily excitement. After which, if there is spanæmia,

℞ Quinine.....	gr. x.
Iron by Hydrogen .....	gr. xij.
Hydrastin.....	gr. xj.
White Sugar .....	gr. xxx.

Mix, triturate; divide into ten powders, and give one three times a day. The diet should be generous, and the following tonic should succeed the powders:

R Scutellarin.....	gr. xx.
Precipitated Carbonate of Iron.....	gr. xxx.
Caulophyllin .....	ʒj.
White Sugar .....	lbss.

Mix, triturate; add to one pint of good port wine, and take one tablespoonful three times a day before eating. The bowels should be kept in a free state by the use of Leptandrin and Neutralizing Mixture, and the patient should avoid all undue exercise.

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### ANGINA PECTORIS.

This is a disease characterized by paroxysmal pains and tenderness in the precordial region, extending to the head, shoulders, arms and legs, and in some cases producing numbness. The pain is sudden in its onset, but is mostly of a dull character, although in some cases it is lancinating or tearing, producing exquisite torture and contractive suffocation. There may be slight dyspnœa or orthopnœa, with lividity of the countenance. The heart usually palpitates, the extremities become cold, the urine is passed in large quantities, and is mostly of a limpid appearance. The bowels are constipated, and in most cases there is more or less constitutional disturbance for some time previous to the attack. If there are cardiac murmurs in connection with the disease, there is reason to apprehend that it is connected with some organic difficulty of the heart. This disease may be a pure neuralgic affection of that organ, accompanied by hysteria and anæmia, or it may be of a periodic character, of miasmatic origin,—a mere masked ague—or it may depend upon some organic disease of the heart.

## TREATMENT.

In this affection, the first object should be to relieve the urgent symptoms. For this purpose, the feet should be placed in hot water, a large sinapism applied over the region of the heart, and the patient caused to take one drop of Aconite every five minutes until the symptoms are relieved. If they are not relieved in the course of half an hour, the following compound should be given :

R Lobelin..... gr. j.  
 Lupulin ..... gr. vj.  
 Hyosciamin ..... gr. ij.  
 White Sugar..... gr. xxx.

Mix, divide into ten powders, and give one every ten minutes until relief is obtained. As soon as the severity of the paroxysm is relieved, the cause of the disease should be ascertained, and such a course pursued as will effect a permanent cure. Antiperiodics should be given where the disease is produced by miasm, chalybeates and tonics where it is dependent upon anæmia, and if it originates in organic disease of the heart, the proper treatment may be found under that head.

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### CONGESTION, OR ACCUMULATION OF BLOOD IN THE CAVITIES OF THE HEART.

Congestion, or accumulation of blood in the cavities of the heart, may occur in consequence of fibrinous deposits interfering with the free movement of the valves. This deposit seems mostly to be a product of endocarditis, although it may arise from regurgitation during fits of dyspnœa, and whenever there is sudden obstruction of the circulation through the lungs.

## SYMPTOMS.

These are orthopnœa, cough, lividity of the countenance, oppression and anxiety. The physical signs are extended area of dulness, irregular rhythm and a labored impulse of the heart. Dropsical effusions and anæmia are frequently produced by this disease.

## TREATMENT.

Give a free purgative of Podophyllin and Cream of Tartar, followed by Syrup of Marshmallow and Iodide of Potassium. If the disease proves obstinate, an irritating plaster should be placed over the region of the heart, and allowed to remain until a free discharge ensues. Aconite should be given to control the circulation, and the diet should be nutritious.

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## PERICARDITIS, OR INFLAMMATION OF THE PERICARDIUM.

The symptoms of this disease depend much upon the state of the inflammation, during the first stage of the inflammatory process. There is more or less fever, with increased frequency of the pulse, cough and dyspnœa. The physical sign is a sound of grating friction. In the second stage, which is that of exudation, there is pain in the region of the heart, irregular pulse, anxiety, dyspnœa, cough, and a tendency to syncope. The features are sharp, and indicate distress. There is scanty and high-colored urine, with alternate fever and apyrexia.

The physical signs are frictional sound, and valvular murmurs, dependent upon endocarditis. In the third stage, bulging of the precordial region may be observed, and if there is extensive effusion, displacement of the apex

of the heart upwards. The area of dulness will be changed, and very materially enlarged. The sound of the heart will be indistinct and muffled. If adhesion of the pericardial surface to the heart should occur, the action of the heart will be tremulous and unsteady. As the disease advances, the head is kept elevated, orthopnoea is a constant symptom, and the patient dreads movement of any kind. In fatal cases *risus sardonicus* often occurs, with tenderness of the Epigastrium, Spasmodic dysphagia, nausea, and vomiting, quæsimania, stupor, and death. Or the severity of the symptoms may gradually yield, and the patient recover.

#### CAUSE.

This disease may be caused by metastasis of inflammation from other parts, as in pleuritis, pneumonia, rheumatism, phlebitis, &c., and in some cases it is said to be idiopathic.

#### TREATMENT.

In the first stage of this disease, the bowels should be opened by full doses of Podophyllin and Cream of Tartar, a warm sinapism should be applied over the region of the heart, and the surface thoroughly bathed in lye water and whiskey. The operation of the cathartic should be followed by from one to five drops of the Tinct. of Aconite every hour, until free diaphoresis ensues. This course will control the active form of the inflammation, after which the patient should take the following diuretic and alterative mixture :

R Syrup of Marshmallow..... ʒv.  
Iodide of Potassium..... ʒss.

Mix, and give one teaspoonful every three hours. At the same time, give from five to ten drops of the Muriated

Tinct. of Iron every five hours. If the disease should be of a periodic character, from five to ten grains of the Sulphate of Cinchonin, and one-eighth of a grain of Gelsemin should be given every three or four hours until that symptom is controlled. If extensive effusion should occur, from one-eighth to one-fourth of a grain of Phytolaccin to the Syrup of Potassa and Marshmallow, may be added. If, after the active symptoms of the disease, there should still remain some cardiac disturbances, the acetic syrup of Sanguinaria will generally suffice to control them.

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## ENDOCARDITIS.

The symptoms of this disease are pain and uneasiness in the region of the heart, with precordial pressure. The decubitis is dorsal. The skin is hot, the countenance is livid, and there is cough, dyspnœa, and tendency to syncope. The physical signs are uneasiness, and increase of the action of the heart, and a grating accompanying the bellows sound. The normal systolic murmurs will be changed, corresponding to the stage of the disease.

## TREATMENT.

The treatment of endocarditis, is essentially the same as in pericarditis. The surface should be bathed in lye water, a warm pack applied over the cardiac region, and Aconite or veratrum given until the active stage of the disease is removed. These should be followed by diuretics, alteratives, and tonics.



## CARDITIS, OR INFLAMMATION OF THE SUBSTANCE OF THE HEART.

This disease is mostly connected with endocarditis or pericarditis, and even when it exists as an idiopathic disease, its symptoms are so closely allied to them that as yet the diagnostic symptoms are very obscure. The treatment should be the same as of inflammation of its membranes.

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## ATROPHY OF THE HEART.

In valvular atrophy, says Dr. Walshe, when the chordæ tendinæ of the mitral valve are shortened or extremely thin, they are probably purely atrophous; the large tongue of the valve is simply defective in size, without obvious puckering, or other evidence of past inflammation: in either case regurgitation may occur. The sigmoid and pulmonary valves may also become atrophous, causing regurgitation in the aorta and pulmonary veins; in the former producing syncope, in the latter asphyxia.

The physical signs are regurgitation with bellows sound. Where there is atrophy of the parenchyma of the heart, the area of dulness will be diminished, and the diastole and systole will both be feeble.

The rational symptoms are pallor, coldness of the extremities, cough, irregular respiration, palpitation, precordial oppression, œdema of the extremities, and in females, irregularities of the catamenia, hæmoptysis, and it frequently terminates in dropsy and phthisis. In old age, the valves of the heart becoming atrophied, frequently causes pulmonary apoplexy.

## . TREATMENT.

The patient should avoid all excesses, in mental and bodily exercise. The diet should consist of rich animal broths, with a liberal amount of fats and sugar. Give the following compound :

R Precipitated Carbonate of Iron.....	ʒj.
Hydrastin .....	ʒij.
White Sugar.....	ʒiij.
Port Wine .....	Oj.
Water.....	Oss.

Dose, one tablespoonful three times a day. If there is much irregularity in the action of the heart, one grain of Myricin, and one-sixteenth of a grain of Veratrin, given twice or three times a day, will usually give relief. In old age, much benefit is sometimes derived from a moderate quantity of malt liquor once or twice a day.

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## HYPERTROPHY OF THE HEART.

By this disease, is understood thickening of one or more of the cavities of the heart. It may exist with, or without other affections of this organ. The difficulties with which it is most frequently connected are dilatation and ossification of the valves. It is said that hypertrophy is mostly confined to the ventricles, and that it is more commonly met with in the left ventricle, than the right. This may sometimes be true, yet, in my practice, it is far from being generally so ; as in some thirty cases of both complicated and uncomplicated hypertrophy, the majority occurred in the auricles. Hypertrophy of the heart may be caused by a preternatural determination of blood to the organ, from a latent form of inflammation, or it may arise from a long-continued increase of action dependent upon nervous disease.

## SYMPTOMS.

The symptoms of hypertrophy of the left ventricle are a sensible, constant increase of the action of the heart; the pulse strong, full, and vibrating. On percussion the area of dulness is extended; and on auscultating the chest, the sound of the heart will be found very much enfeebled, and if hypertrophy is connected with dilatation, the diastole will be materially prolonged. In this way we may be enabled to distinguish between simple hypertrophy and that accompanied with increase in the capacity of the cavity. In hypertrophy of the right ventricle, the signs are very nearly the same as above, except the shock of the heart's action will be felt at the base of the sternum, instead of between the fifth and sixth ribs, as in hypertrophy of the left side.

In hypertrophy of the ventricles, the impulse will be much increased, and the systole shortened in duration, while the diastole will be prolonged. The diseases produced by these cardiac derangements are: dropsy, hæmoptysis, asthma, tubercles, phthisis, and asphyxia.

## TREATMENT.

In treatment of hypertrophy of the whole or different portions of the heart, all stimulating articles of food and drink should be avoided, as also the use of tobacco. To lessen the action of the heart, and thereby prevent the abnormal supply of nutrition, is another essential element of the treatment. For this purpose a sufficient amount of Tct. *Veratrum Viride* may be given, say from five to ten drops three or four times a-day. The pulse should be maintained at about fifty-five or sixty by the use of the *Veratrum*. At the same time one teaspoonful of the solution of Iodide of Potassium should be taken three times a-day. If the disease proves persistent, and should not yield to this plan of treat-

ment, from one-eighth to one-fourth of a grain of *Phytolaccin* may be given every night at bed-time. The bowels should be moved once or twice a-week, with *Podophyllin* and Cream of Tartar, and the patient should avoid all mental and bodily excitement.

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## DILATATION, OR ENLARGEMENT OF THE CAVITIES OF THE HEART.

. Dilatation may be confined to one cavity of the heart, or it may extend to all. The cause of this disease, says Dr. Bertin, is owing to some obstruction in the circulation of the blood, as diseases of the valves, &c., while Laennec attributes it to congenital disproportion in the parts of the heart. But what is a more common cause of the disease in this country is an impoverished state of the blood, producing a weak and lax state of the muscles, thus giving rise to dilatation.

### SYMPTOMS.

The patient is often attacked with violent dyspnœa and palpitation, followed by a weak and feeble pulse; tendency to syncope, and in some cases nausea and vomiting. The bowels are mostly constipated, and there is frequently pain and præcordial pressure. According to Laennec, the most constant and characteristic sign of this disease is a swollen state of the jugular veins without pulsation.

### TREATMENT.

The principal classes of medicines indicated in this disease are tonics and astringents, such as *Hydrastin*, *Macrocin*, *Myricin*, and *Muriated Tincture of Iron*. The diet should be full and nutritious, and the patient allowed to drink porter or ale once or twice a-day, with his meals. The *Muriated Tincture of Iron* should be taken in from

five to ten drop doses three or four times a day in a small quantity of beef tea or starch water. The Macrotin, Myricin, and Hydrastin, should be used in the form of a syrup two or three times a-day.

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### PHLEBITIS AND PHLEGMASIA DOLENS.

Phlebitis is inflammation of the inner membrane of a vein. It may occur as the effects of blood-letting, the application of ligatures, pressure upon some venous trunk, &c. The pathological effects of inflammation of the veins vary according to the extent and severity of the inflammation. In most cases the affected vein is swollen, thickened, and indurated to such a degree as to very much resemble an artery. A diffused swelling, connected with acute pain, coated tongue, scanty urine, constipated bowels, and pyrexia, are among the prominent symptoms of this disease. Upon examination, the adipose, cellular, and subcutaneous tissues are found to be filled with fluid; and when the parts are laid open, clots of blood and lymph are found adhering to the inner coats of the veins. If the inflammatory process continues, the clots of blood and lymph are converted into purulent matter, rupturing the vessels, and forming a deep phlegmonoid abscess in the adjacent tissue.

Phlegmasia Dolens is an inflammation of the veins of the leg, mostly caused by pressure of the gravid uterus, upon the iliac and other veins, generally making its appearance on the second or third week after delivery. It occurs for the most part in one leg, exhibiting to the touch numerous irregular prominences under the skin.

### SYMPTOMS.

In the course of two or three weeks after confinement, pain and uneasiness are complained of in the hypogastric,

lumbar and inguinal regions. On examining the limb, it will be found tense, elastic and shining, mostly painful to the touch. It will also be flexed.

The skin will be hot, the pulse quick, with great thirst and restlessness. If the disease is allowed to advance, the tongue will be covered with a dark sordes, the respiration becomes hurried, and delirium, coma, and death, rapidly follow. Or the symptoms will continue in a mild form for weeks, or even months, and the patient recovers, but with a shattered constitution.

The above are the most ordinary symptoms, yet they vary exceedingly in different cases. Sometimes the pain commences in the knee, and is of a sharp darting character, extending to the groin. The limb is but slightly swollen, and cold, but has a peculiar glistening appearance. The secretions of milk will be interrupted, and the bowels irregular. At other times the disease will assume a decided periodic character. The symptoms, such as pain, redness and fever, will all become exceedingly aggravated, at a certain stated period, and remain so for a few hours, followed by a distinct remission; or the disease may be transferred to other organs, as the peritoneum, pleura, or lungs, producing extensive organic disease of those organs.

#### TREATMENT.

The treatment of phlebitis, when it is traumatic, consists in the application of warm emollient poultices, as slippery elm, saleratus and myrrh, kept moist with the Tinct. of Arnica, and the administration of brisk purgatives of Podophyllin and Cream of Tartar, or Cream of Tartar and antibilious physic, succeeded by a mixture as follows :

R Muriated Tinct. of Iron.....	℥ss.
Pure Water.. .....	℥vi.
Sulphate of Cinchonin.....	℥ss.



Mix, and give one teaspoonful five or six times a day. If there is fever, Aconite or Veratrum should be given to control it. The purgative should be repeated as often as indicated. After the swelling is subdued, the limb should be evenly bandaged, and kept wet with the Tinet. of Lobelia.

In Phlegmasia Dolens, the poultice should be applied with a bandage over it. A purgative should be given similar to that in traumatic phlebitis, succeeded by the following compound :

R Sulphate of Bebeerine..... gr. xxx.  
 Caulophyllin ..... gr. xj.  
 White Sugar..... gr. xxx.

Mix, triturate ; divide into ten powders, and give one every three hours. Aconite may be given to control the fever, and the back, hips, and lower part of the bowels be bathed in a liniment prepared as follows :

R Oil of Turpentine..... ℥j.  
 Eggs..... v.  
 Common Salt ..... ℥ss.

Mix, and use two or three times a day. If the disease should assume a periodic character,

R Muriated Tinct. of Iron..... ℥ss.  
 Water ..... ℥ij.  
 Quinine ..... gr. xx.

Give one teaspoonful every three or four hours. The surface should be thoroughly bathed, and if practicable, a spirit-sweat given once or twice a week. When the active stage of the disease has passed, small doses of Carbonate of Iron, with Euonymine, may be given three or four times a day. If there should be a chronic diseased condition of the vessels of the limb, the bandage should be continued, and kept moist by vegetable astringents. The patient

should also take Iodide of Potassium in connection with tonics. The diet should be full and nutritious, and entire rest should be enjoined.

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### CYANOSIS, MORBUS CÆRULEUS, OR BLUE SKIN DISEASE.

This disease is confined to infants. The symptoms are a peculiar livid or blue appearance of the skin, frequently extending to the mucous membrane of the mouth. There is constant cough, dyspnœa, and palpitation. In some cases the dyspnœa becomes so excessive, as to produce syncope and death.

The causes of these symptoms have been shown by Dr. Gintrac, to be as follows :

In 22 cases, the aorta was found to arise from both ventricles.

- |      |   |  |
|------|---|--|
| “ 30 | “ | the foramen ovale was open.                    |
| “ 14 | “ | the ductus arteriosus was open.                |
| “ 4  | “ | a single heart with one auricle and ventricle. |
| “ 5  | “ | the ventricular septum was imperfect.          |
| “ 22 | “ | the pulmonary artery was contracted.           |
| “ 5  | “ | the pulmonary artery was obliterated.          |
| “ 1  | “ | the aorta was obliterated.                     |
| “ 4  | “ | the aorta arose from the right ventricle.      |

The above table shows that this disease is mostly dependent upon congenital deformities of the heart and its appendages.

#### TREATMENT.

But little can be done in the treatment of this disease, more than to give temporary relief. Where there is syncope, the child should be placed in a warm bath, and ammonia or camphor applied to its nostrils. After which it should be wiped dry, and wrapped in a warm flannel.

For the cough one or two drops of the Tinct. of Lobelia should be given in a teaspoonful of breast milk. The action of the heart may be regulated by Aconite, and in some cases, where the deformity is only partial, the child will gradually recover.

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## HEADACHE.

This is frequently a mere symptom of idiopathic disease, yet we often meet with cases where the difficulty constitutes the only perceptible ailment. Headache may be caused by a preternatural determination of blood to the brain, by the too frequent use of intoxicating liquors, by a disordered condition of the stomach and bowels, by a loss of balance between the venous and arterial circulation, by an injudicious use of tea and coffee, undue mental or bodily exertion, imperfect menstruation, and the too frequent use of purgative medicines. It is also a symptom of most Idiopathic fevers, as well as most other acute diseases.

### TREATMENT.

When headache is dependent upon over-exertion of the mind or body, add one-half grain of Belladonna to one-half tumbler full of water, and give one teaspoonful every fifteen minutes, until the pain ceases. If dependent upon constipation of the bowels, mix one ounce of neutralizing mixture and one grain of Podophyllin, and take one or two teaspoonfuls a-day, or a quantity sufficient to keep the bowels in a soluble condition. If upon imperfect menstruation :

R Macrotin..... gr. vj.  
 Vallet's ferruginous mass..... gr. xxx.

Mix, make twelve pills, and take one every night. Where the headache depends upon eating and drinking more than nature requires, this should be carefully corrected.

## CONVULSIONS IN ADULTS AND CHILDREN.

When convulsions occur in adolescence, it may indicate inflammation of the brain, plethora, or anæmia, ossification of the arteries of the brain, growth of tumors on the inner table of the skull, &c. When they occur in children, although frequently arising from disease of the brain and spinal marrow, they are nevertheless produced, in a great majority of cases, from irritation, transmitted to these parts, from the digestive organs.

## TREATMENT.

When the disease occurs in adults, the treatment depends principally upon the cause. Although during the convulsions, small doses of equal parts of the Tinct. of Lobelia and Scutellaria, should be frequently administered into the stomach, if practicable; otherwise mixed with starch water, and given in the form of an enema. The circulation should be equalized by hot baths, sinapisms to the calves of the legs, feet, &c.

When thus relieved, the patient should be treated according to the cause. Where children are seized with convulsions, the first object should be to evacuate the stomach and bowels. For this purpose, four or five drops of the compound Tinct. of Lobelia should be given, every five or ten minutes, until the stomach is thoroughly evacuated. At the same time, the bowels should be injected with equal parts of warm water, oil of olives, and molasses. The child should be placed in a warm bath during the action of the emetic and injection. When the child has been relieved by the above course, all irritating food should be carefully avoided, and a weak tea of Hydrastin and ginger, well sweetened, should be given occasionally for the purpose of giving tone to the stomach.

## NEURALGIA.

Neuralgia has alternately been classified under the head of surgical and medical disease. But from the almost universal failure of surgical practice to relieve it, this disease is now almost generally treated as belonging to the medical department.

There is yet, however, some difference of opinion with respect to its pathology. Prof. Jones and others regard it as but a form of ague; while Craigie and others consider it to have its seat in an inflammation of the neurilema or covering of the nerve. Dr. McIntosh states that the cause of this disease may frequently be traced to a disordered state of the stomach, and alimentary canal. Dr. Elliotson in the 3d volume of the *Cyclopædia of practical medicine*, p. 388, states that the nature of neuralgic affections may be evident immediately, or, not till after a lapse of time; may become evident after death only, or, may never be discovered. He further states that inflammatory conditions of the nerves, and structural changes, as well as mechanical causes, may be detected during life, if the seat of these conditions is within the reach of observation; and symptoms may be induced, which clearly point out the inflammation or structural changes, even if those should be beyond our observation.

Occasionally, however, the seat and cause of the irritation is not only beyond our reach during life, though discoverable afterwards, but no symptoms are produced which indicate them. From the above remarks, and many other observations which might be made, we perceive that quite a diversity of opinion exists relative to its pathology. In order to harmonize the conflicting theories, resulting as they do from actual observation, we might conclude that occasionally it has its origin in inflammation of the membranes of the nerves, in spinal irritation, in derangement

of the stomach and bowels, and in affections of the kidneys ; also, that it frequently arises as one of the effects of miasm, and assumes a disguised remittent character.

## SYMPTOMS.

In the most aggravated form the pain is lancinating or tearing, as the patient expresses it. It is sharper at some times than others, and in some instances the parts become red, and assume the appearance of inflammation, although this is not generally the case. When this disease attacks the nerves of the face, it is called *Tic Douloureux*.

All the soft tissues seem to be liable to this affection. The attacks are mostly sudden, and last from a few hours to several days. The constitutional symptoms connected with them are frequently very slight, although, in some cases, the pulse becomes quick, the urine scanty and high-colored ; a light brown coat will appear on the tongue, and there will be alternate fever and perspiration. In other cases the paroxysms will commence with rigors and chills, followed by fever and perspiration ; in short, manifesting all the essential symptoms of ague.

## TREATMENT.

As this disease is decidedly of an intermittent character, where there is no obvious organic lesion or perceptible cause of the disease, the treatment should be commenced by giving full doses of antiperiodics, such as the following :

R Scutellarin .....	gr. x.
Cypripedin .....	gr. v.
Quinine .....	gr. x.
Prussiate of Iron.....	gr. xij.

Mix, triturate, divide into ten powders, and give one every two hours, till all are taken. At the same time the affected parts should be thoroughly bathed in a strong, hot solution

of Ferrocyanide of Potassium. These applications should be made in the form of fomentations, and changed as often as cold. When the antiperiodic powders are all taken, the bowels should be thoroughly evacuated by the use of antibilious physic and Leptandrin. If the above prescription be not sufficient to remove the disease, give the following:

R Tinct. of Gelseminum .....	ʒij.
“ Macrotys Racemosa .....	ʒj.
“ Iodine .....	ʒss.

Mix, and give three drops every three hours, until the symptoms yield. If there should be a tendency to a periodic return of the disease, the antiperiodic powders should be repeated from time to time. The bowels should be kept in a natural condition by the use of Neutralizing mixture, and as often as once or twice a week, the surface should be thoroughly bathed. Where the disease is dependent upon spinal irritation, in addition to the above mentioned causes, an irritating plaster should be placed along the spine, and remain until a free discharge ensues. Where there is derangement of the menses, Senecine and Bebeerine should also be used as circumstances seem to indicate.

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## HYSTERIA.

This is a disease of the nervous system, and almost wholly confined to females, although it is said that males are not exempt from it. The invasion of the disease is sudden and irregular, but in many cases decidedly periodical. In slight attacks the patient bursts into a fit of weeping, soon followed by convulsive laughter, which lasts for a longer or shorter time, and may be followed by comparative composure.

In more severe cases, the complaint is ushered in by a sharp pain in the abdomen or chest, which is soon followed



by a sense of suffocation and oppression at the Epigastrium. The bowels are tense and the surface is cold. The countenance varies; in some cases it is red and swollen, in others it is pale, and the features are contracted. In some very severe cases, there is a convulsive affection of the muscles, amounting to clonic spasms. The urine is mostly discharged in large quantities, and has a light limpid appearance.

#### CAUSES.

We seldom meet with this disease before puberty, or after the period of life when menstruation finally ceases, and as it mostly makes its appearance during the catamenial flow, it is supposed to have its origin mostly in deranged uterine action.

#### TREATMENT.

During the paroxysms, the feet should be placed in warm water, and a hot sinapism applied to the lower part of the abdomen. The patient should take equal parts of Cypripedin and Scutellarin, one grain every half hour until the paroxysms subside. If the above is not sufficient to control the disease, the compound ginger and Bayberry tea may be given freely, followed by ten or twenty of Beach's sudorific drops, or thirty or forty drops of the Tinct. of Castor, followed by a pill of assafoetida. After the paroxysm, the patient should take from five to ten grains of Bebeerine, and the same amount of phosphate of Iron, every day for two or three weeks.

To remove the uterine affection, Macroton, Caulophyllin and Senecioin should be used, as the nature of the case seems to indicate. When the disease is dependent upon indigestion and constipation of the bowels, tonics and laxatives are the remedies. If upon spinal irritation, the proper treatment will be found under that head.

## MYELITIS, OR INFLAMMATION AND IRRITATION OF THE SPINAL MARROW.

The symptoms of this disease are a sharp pain up and down the back, rigors, fever, headache, and not unfrequently delirium and coma. In some cases dysuria occurs, in others retention of the urine. Rigidity of the muscles of the back and neck is almost a constant symptom. The body may be bent backwards, *opisthotonos*, or forwards, *emprosthotonos*, or there may be a simple rigid state of the muscles, and the decubitis normal. In other cases there may be tetanus, convulsions, or paralysis. The muscles of deglutition are often so affected as to occasion much difficulty of swallowing. The pulse is mostly hard and quick, the bowels are extremely constipated, and frequently there is nausea and vomiting. The respiration is slow and irregular, and occasionally death is suddenly produced by asphyxia.

### PROGNOSIS.

The prognosis of this disease is usually favorable under the eclectic system, if it receives timely treatment.

### TREATMENT.

A sinapism should be applied along the spine, and the feet should be placed in warm water. The patient placed upon the Tinct. of Veratrum Viride, if of a plethoric habit; if otherwise, Aconite should be given, and the following cathartic may be administered :

R Cream of Tartar.....	gr. xx.
Podophyllin .....	gr. iij.
Capsicum .....	gr. x.

Mix, triturate; divide into six powders, and give one every hour until a cathartic effect is produced. The powders

should be assisted in their action by warm stimulating enema. If the disease still proves persistent, a spirit-vapor bath should be given, followed by an emetic of the acetic tincture of Lobelia and Sanguinaria, also repeat the cathartic and continue the sinapism to the spine. If there should be muscular spasms, give the fluid extract of Lobelia, Cypripedin and Scutellaria, equal parts, from five to ten drops every half hour until that symptom subsides. After the active stage of the disease is passed, to prevent disorganization of the spinal marrow and its membranes, with its consequences, such as paralysis, &c., a full antiperiodic course of medicine should be given, followed by two or three drops of the Tinct. of Phosphorus once or twice a day. The bowels should be kept open, and the system supported by the liberal use of Hydrastin and Euonymine.

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## SPINAL IRRITATION.

This affection might be more properly designated as chronic inflammation of the spinal marrow, and its membranes. In fact the various morbid changes observable as the symptoms of what is usually designated spinal irritation, such as softening, effusion, hypertrophy, &c., all clearly indicate the previous existence of a latent inflammatory process.

### SYMPTOMS.

Says Prof. J. G. Jones: "The proteian manifestations of spinal irritation, and the great liability that exists to mistake some of the numerous disturbances produced by disease seated in the spinal nerves, for other and more serious organic affections, remote from the source of trouble, renders the consideration of this subject scarcely less important to the student of medicine, than that of any other

topic connected with disease. Scarcely an organ in the body can be found that is not by turns made the scapegoat upon which these great nervous centres play off their fantastic representations of serious organic or functional disturbances, and thereby mislead the unsuspecting attendant, at the expense to the patient, of a severe course of medication directed to disease having its real seat far remote from the organ manifesting embarrassment and functional disturbance." It will be perceived by these remarks of Prof. Jones, that irritation of the spinal marrow assumes a great variety of symptoms, which is actually the case.

Not unfrequently females who are troubled with the latent form of spinal affection, exhibit symptoms of uterine derangement, heart disturbances, irritation of the lungs and bronchi, irregularity of the bowels, neuralgic pains, &c., succeeding each other in a rapid series of changes. The diagnosis must be made up, in these cases, by carefully examining each organ, thus sympathetically affected, by itself; and, in the absence of any serious organic disease, together with the extreme nervousness of the patient, it will enable us to arrive at the true source of the complaint. On pressure of the spinal processes, there will generally be found more or less tenderness, although I have seen quite a number of cases of evident spinal irritation where this symptom was not present.

#### TREATMENT.

In cases of spinal irritation, the irritating plaster should be applied along the diseased part of the spine, and caused to remain until a free discharge ensues, and the following tonic and alterative given :

R Phosphate of Iron .....	gr. xxx.
Scutellarin.....	gr. xx.
Syrup of Iodide of Potassium .....	℥iij.
Port Wine .....	Oj.

Mix, and give one tablespoonful three times a day. The surface should be bathed in warm or cold water, as indicated, twice or three times a week; and the bowels should be kept regular by the use of small doses of Neutralizing mixture. When the above course has been pursued for some time, and the disease is not removed, the following compound may be given :

R Valerianate of Quinine .....	gr. xx.
Cypripedin .....	gr. x.
Sanguinarin .....	gr. xx.
White Sugar .....	℥ss.

Mix, triturate, and give ten grains four or five times a day. Also, bathe the surface in a warm solution of Ferrocyanide of Potassium every morning. If there is Leucorrhœa connected with the spinal difficulty, Macrotin and Caulophyllin should be given in addition to the above.

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## HYPOCHONDRIASIS.

The symptoms of this disease are exceedingly various, and are both imaginary and real. The imaginary ones are numerous, such as want of sleep, constipation of the bowels, inability to sleep, &c. Nothing is more common than to hear the patient state that he has been unable to close his eyes in sleep for several nights, when the fact is that he has slept regularly. Or that the bowels have not moved for days, or even weeks, when they are perfectly regular. Or there may be a great variety of imaginary difficulties at the same time. The complaints of one individual that I treated for this disease will serve to illustrate the imaginary symptoms of this class of cases: The patient was a male about 45 years of age. He first complained of inability to walk, and accordingly took to his bed. He was soon unable to speak above a whisper, and imagined he was laboring under an attack of acute phthisis, and, as he

said, had excessive dyspnœa and violent cough, although he neither coughed nor apparently had any difficulty of breathing. He also complained of an entire loss of appetite, and inability to take food, yet he ate three hearty meals daily. At times he thought he was about to die from an extensive affection of the heart; and also, that his liver and kidneys were consumed. In short, he was composed of a congeries of all the ills that afflict the human family. He continued in this state for twelve years, only leaving his bed for a few minutes at a time, and then with great difficulty. During the whole time, he only spoke above a whisper, except when angry. He would then become very boisterous, and talk exceedingly loud, which in one or two instances lasted for several days. But when the fit passed off, he was as seemingly incapable of speech as before. On examination, no apparent disease existed further than the natural debility dependent upon so long confinement. By a proper course of mental and physical treatment, he soon recovered, and resumed his ordinary occupation, that of farming. And although it is now over ten years, he has enjoyed uninterrupted good health. Females who are afflicted with this diseased condition of the mind, often imagine they have some severe uterine derangement. And frequently the medical attendant being as ignorant of the cause of the disease as herself, subjects her to a very disastrous course of medication. Another class of patients afflicted with hypochondriasis have, in addition to the imaginary symptoms, some real organic affections which require special treatment.

Hypochondriasis, no doubt, is induced by a want of harmonious action between the different organs of the brain.

#### TREATMENT

The treatment of this malady should consist principally in quieting, as far as practicable, the already-excited faul-

ties of the brain, and bringing other faculties into action. The mind should be constantly directed to other subjects than those to which it has been previously directed; and those subjects should be sufficiently exciting to arrest his former meditations. The head, should be frequently showered in cold, and the body, in tepid water. He should be induced to take as much exercise as his enfeebled condition will warrant. The bowels are to be regulated by mild aperients, and in some cases chalybeates and vegetable tonics will be required. If the disease is complicated with organic affections, it should be treated accordingly.

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## OPHTHALMIA, OR INFLAMMATION OF THE EYES.

The eye is one of the most delicate as well as one of the most complicated organs of the body.

Diseases of the eye have been until recently very imperfectly understood. Thus has the patient been duped, not only in a pecuniary point, but too often mourns the loss of that inestimable organ.

Ophthalmia is mostly described as a surgical disease, but considering that a large majority of cases of this class originate in some defect of the constitution, the propriety of treating upon them, in a work on practical medicine, will readily be perceived.

Inflammation of the eye may be divided into external, or inflammation of the conjunctiva, and deep-seated, or inflammation of the other tunics, including amaurosis, which is frequently produced by inflammation. This disease is again divided into acute and chronic.



## INFLAMMATION OF THE CONJUNCTIVA.

The first symptom complained of, in this form of inflammation of the eye, is a sensation as if particles of sand had insinuated themselves beneath the lids, accompanied by heat, pain, and increased lachrymal secretion; also, intolerance of light. In severe cases there are headache, nausea, constipation of the bowels, anorexia, and more or less disposition to fever. The causes of this form of Ophthalmia are mostly local—as particles of sand, dust, or insects beneath the lids, inversion of eyelashes, &c.

## TREATMENT.

The first object should be to remove the cause. If there is an irritating substance beneath the lid, the eye should be thoroughly bathed in cold water while the lid is held open. If the substance is not removed in this manner, a vial cork should be rubbed perfectly smooth with a dry flannel: the particle may then be removed by touching it lightly with the cork. Particles of iron or steel may be removed in this manner; also, by means of a small magnet. When the eye is thus relieved, it may be packed in cold water, and the patient's bowels moved by a dose of anti-bilious physic. If the injury be sufficient to cause inflammation of the eye, a mild diet may be adopted for a few days, and the packs changed as often as necessary to keep them cool.

## CATARRHAL OPHTHALMIA.

## SYMPTOMS.

After exposure to cold, the eyes are noticed to have a smarting or burning sensation, and the capillaries to be sufficiently dilated to admit of the red corpuscles, whereas

in a normal condition they only convey white ones. The dilated capillaries at first exhibit a radiated appearance, but soon become confluent, and the entire conjunctiva assumes a red and highly inflamed aspect. This condition of the eye is accompanied by chilliness, aching of the bones, and some degree of fever. There is also intolerance to light, and, when the disease has become established, a puriform discharge from the eyes.

## TREATMENT.

As this form of inflammation of the eye is dependent upon exposure to cold; in other words, upon a contracted state of the superficial capillaries, and consequent congestion, or inflammation, of the deep capillaries,—the first indication of treatment is to relax the vessels of the surface, and thus unload the congested internal vessels. To effect this the surface should be thoroughly bathed in warm lye water, the patient placed in bed, and the following emetic given :

R Lobelia seed, pulverized ..... gr. xx.  
Ginger Tea ..... Oj.

Add the Lobelia to the ginger tea while warm, and give one wine-glass full every fifteen minutes, until a thorough emetic effect is produced. The bowels should be opened by the liberal use of antibilious physic. During the action of the emetic and cathartic, the eyes should be kept packed in cold, soft water. If the disease has assumed a chronic form, the pack should be applied as warm as the patient will bear it, and an astringent wash used once or twice a day, such as one gr. of nitrate of silver added to one oz. of pure soft water, and a small quantity applied to the eye by means of a camel's hair pencil once or twice a-day; or the eye may be bathed in a strong decoction of Hydrastis every morning and evening. All irritating salves and eye-washes should be carefully avoided, as they always prove

injurious. If there should be fever, it should be controlled by the use of Aconite. The diet should be cool and bland, the eye precluded from light, and the patient kept quiet.

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## INFLAMMATION OF THE EYES OF INFANTS, OR PURULENT OPHTHALMIA.

### SYMPTOMS.

The symptoms of purulent ophthalmia of children, are somewhat similar to those of catarrhal ophthalmia of adults. The eyes are kept constantly closed, the lids are red and swollen, and glued together by thick puriform matter becoming dry. The skin will be dry, and the bowels irregular. If this disease is neglected, it will result in ulceration of the cornea and loss of the organ. The cause of this disease is exposure to cold, damp clothing, and injuries in washing the child; also the introduction of acrid matter, which is upon the child, into the eye.

### TREATMENT.

In the treatment of this affection, the eyes should be thoroughly bathed in a cold, weak solution of Hydrastin, four or five times a-day. They should be kept packed in cold soft water, to which is added a small amount of the Tinct. of Lobelia. The bowels should be kept open by the use of neutralizing mixture and Leptandrin, and from one-half to one drop of Aconite, given every four or five hours. Where the eye-lids become granulated, they should be inverted, and lightly touched with a camel's hair pencil, moistened with a solution of vegetable caustic, once or twice a-day; but much care should be taken that the caustic be all removed before the lids are closed. All poultices should be avoided. Where the disease is of a

scrofulous character, either in children or adults, Muriated Tinct. of Iron, Compound Syrup of Stillingia, Hydrastin, Scrophularia, Quinine, Iodide of Potassium, Iodide of Iron, and a generous diet, are the remedies.

## AMAUROSIS.

The term amaurosis is used to denote a partial or total loss of vision, affecting one or both eyes. The causes of this affection are various. It may arise from the inflammation of the sclerotic coat, from inflammation of the iris, from inflammation of the retina, by congestion of the vessels of the retina, by congestion of the brain, by effusion into the base of the brain, by the too free use of ardent spirits, by gastro-intestinal irritation, by tuberculous affection of the optic nerve, by spermatorrhæa, internal use of mercury, exposure of the eye to too strong light, &c.

### SYMPTOMS.

The symptoms of amaurosis very much depend upon the cause. Yet the following may be enumerated as generally present in cases of this kind: imperfect vision, pain in the eye, flashes of light, dark spots appearing before the eyes, and in some cases the pupil will be obviously dilated. The disease is mostly insidious, and its progress very slow, although in some cases it is rapid, destroying the vision almost at once.

### TREATMENT.

If amaurosis is dependent upon any of the inflammatory affections, a thorough purgative should be given at once.

As,

R Podophyllin..... gr. iij.  
 Jalapin ..... gr. j.  
 Cream of Tartar..... gr. xxx.

Mix, divide into eight powders, and take one very hour until it operates. After which the patient should be put upon full doses of Tinct. of Veratrum, the pulse maintained at about fifty-five or sixty beats per minute, and the following diuretic or alterative given :

R Syrup of Marshmallow..... Oss.  
 “ Iodide of Potassium..... ℥ij.

Mix; dose, one teaspoonful three or four times a-day. The eye should be kept constantly packed with cold water, the diet should be low, and the patient should avoid all exposure of the eyes to the light, and all mental and physical labor. If effusion of lymph has taken place within the tunics of the optic nerve, or any part of the eye, causing amaurosis, absorption can be produced by the following pill :

R Xanthoxilin ..... gr. xx.  
 Iridin..... gr. x.  
 Podophyllin ..... gr. iij.  
 Iodide of Potassium..... gr. xxx.  
 Ext. of Dandelion, in quantity sufficient  
 to make a pill mass.

Make three-grain pills, and let three to six be taken per day. At the same time, the kidneys should be stimulated by the use of Cream of Tartar water and vegetable diuretics, as Queen of the Meadow, &c. Where there is loss of power in the nerve, bathing the forehead in strong Tinct. of Capsicum, three or four times a-day, will be very beneficial. The eyes should be well protected from strong light, and from three to five drops of Tct. Rhus Radicans given three times a day. If this remedy should fail to give relief in the course of a few weeks, the following mixture should be given :

R Hydrocyanic Acid..... gtt. viij.  
 Quinine Sulph..... gr. xx.  
 Aqua..... ℥ij.

Mix; dose, one teaspoonful four or five times a day. The bowels should be kept open by the occasional use of a stimulating purgative. Cold baths should be taken as often as every third day. Where the disease is of long standing, indicating paralysis of the optic nerve, the following may be used to advantage:

R Extract Macrotys..... gr. xx.  
 “ Mux Vomica ..... gr. x.  
 “ Euonymine ..... gr. xxx.

Mix, and form a pill mass, and make two-grain pills. Dose, from one to three pills, three times a day. During the entire course of treatment, the anterior portion of the head should be frequently bathed with a stimulating preparation.

## DISEASES OF THE SKIN.

### HERPES, OR SALT RHEUM.

#### SYMPTOMS.

Small vesicles grouped together upon inflamed patches of skin; the vesicles contain a thin, light, transparent fluid, which is absorbed or evaporated, leaving a thin transparent scale. This desiccation will desquamate and leave the part, which will again become affected in the same manner. There are two other varieties of Herpes spoken of by writers, viz: Herpes Zoster or Shingles, and Herpes Circinatus or Ring-worm. The symptoms of Herpes Zoster are full and quick pulse, dry skin with fever, tenderness of the Epigastrium, constipation of the bowels; and the herpetic eruption which generally commences on the bowels, and spreading frequently, encircles the body. The appearance of the eruption, is almost identical with salt rheum: it is in fact the acute form of

it. The symptoms of Herpes Circinatus are very simple; it being only what is known as a ring-worm, no farther description will be required.

#### TREATMENT.

As an external application, an ointment may be used made as follows :

R Iodide of Zinc.....	gr. xxx.
Ext. of Phytolacca Decandra.....	gr. xx.
“ Black Walnut Bark.....	gr. xxx.
“ Balsam Copaiba .....	ʒij.

Mix, and rub a small portion on the diseased part, morning and evening. Previously, the part should be well bathed in a strong decoction of Black Walnut buds or leaves. At the same time, the following compound should be taken internally :

R Juglandin.....	ʒj.
Irisin.....	ʒss.
Sac Alba .....	ʒiij.

Mix, triturate, and give from ten to fifteen grains twice a day. Also give one teaspoonful of compound syrup of Stillingia three times a day. If there is tenderness in the parts after the disease seems to be removed, they should be protected by liquid collodion for a few months, to prevent a return. For Herpes Circinatus, or ring-worm, wash the parts in Saleratus water, and cover with Collodion.

In Herpes Zoster, or Shingles, the eruptive surface should be well bathed in a strong solution of zinc, after which apply a slippery elm poultice. A purgative of Juglandin and Cream of Tartar should be given, and repeated from time to time as long as the disease proves active. To control the fever, Aconite or Veratrum should be used, and the surface frequently bathed in lye water. If the disease is periodical, some of the antiperiodic medi-



cines should be given. The zinc wash should be repeated from time to time, until the active inflammation is subdued. Afterwards use the liquid Collodion instead.

## ECZEMA.

This is another form of herpetic eruptive disease, and like all others, it is characterized by small blisters or vesicles. There are several varieties of this form of eruptive disease, such as Eczema of the face, or *crusta lactea*, Impetigo, or moist tetter, &c. The causes of these cutaneous eruptive diseases are as numerous as the varieties. They may arise from improper diet, exposure to cold, teething in children, intestinal irritations, &c. They are also hereditary. The symptoms depend very much upon the cause; but in all cases, where the disease is in any way severe, there is more or less constitutional disturbance, such as irregularity of the bowels, fever, quick pulse, scanty and high-colored urine, &c. The limits of this work will not allow of a minute description, of every form, of these eruptive diseases and their symptoms. But as the treatment varies only, as the causes are different, the descriptions and symptoms given will be found sufficiently minute for all practical purposes.

## TREATMENT.

There is no class of remedies more efficacious in skin diseases, than the preparations of the *Juglans cinerea*; and the most efficient of these is the *Juglandin*. This should be used in connection with bitartrate of potassa, in sufficient quantities to produce a mild purgative effect. The best preparation of that kind is the following :

R	Juglandin .....	gr. xxx.
	Cream of Tartar .....	gr. xxx.
	Pulv. Cubebs.....	gr. xx.

Mix, triturate, and divide into twenty powders, and give one every morning and evening.

The above may be given in connection with, or alternated with antiscrofulous syrup, or Iodide of Potassium. In some cases, iron and antiperiodics will be required. The external applications should be tar ointment, nitromuriatic acid, zinc ointment, ointment of Baptisin, acetic Tinct. of Bloodroot, astringent washes, slippery elm poultices, and Collodion. These different remedies may be used as the nature and character of the disease seem to indicate. In the active stage, the preparations of zinc are the best adapted to remove the disease, while the others are more efficient in the chronic stages.

#### ITCH, OR SCABIES.

This disease is caused by minute white insects, the *Acarus Scabiei*, or *Sarcoptes hominis*, which insinuate themselves beneath the cuticle, and travel over the different portions of the rete mucosum. It is said that these insects travel in pairs—male and female—and that the female is very much smaller. By the aid of the microscope, they are observed to have a large number of bristles upon the head or proboscis. When they find a soft and moist portion of skin, they burrow beneath a small dermoid scale, and luxuriate until a deposition of a small quantity of serum from the blood warns them, that unless they take their departure, a flood will soon overtake them. But before taking their final leave, the female deposits her eggs at the point of the vesicle; thus a nidus is formed for the complete development of the *acarui*.

#### SYMPTOMS.

A vesicular eruption makes its appearance between the fingers, and in other soft portions of the skin, accompanied by an intolerable itching. If the vesicle is opened, a small amount of sero-albuminous matter will escape, and if allowed to dry, will form a light brown scale.

## TREATMENT.

The only remedy necessary in the treatment of this disease is sulphur, and the reason why this remedy is not more successful, is the inefficiency of its application. The entire surface of the patient should first be washed with soap and water; immediately afterwards, a strong decoction of sulphur should be applied to every portion of the body, and allowed to remain from one-half hour to an hour, when the whole surface should be wiped with a towel, wrung out of strong saleratus water. One application of the sulphur, used as directed above, will generally remove the disease; yet, it is advisable to renew the application several times. The sulphur, on coming in contact with the insect, immediately destroys it.

## PUSTULOUS CUTANEOUS DISEASE.

All the diseases characterized by pustules, may be correctly classified under the above head. Willan and Bateman specify four varieties of this form of non-contagious disease, viz: phlyzadium, psudracium, achor, and favus.

## SYMPTOMS.

A greater or less number of distinct tumefied eruptions, which gradually mature and become filled with a sero-purulent matter, and having an inflamed base. These may appear in small clusters, and disappear in a few days, or they may cover a considerable part of the hands, face, or other portions of the body, and be accompanied with extensive inflammation of the integument, and extending in some instances to the adjacent tissues, terminating in phlegmonoid abscess. Nearly all the forms of tetter come under this class, as do also impetigo and acne. In some cases, there are constitutional symptoms, as fever, quick

pulse, headache, loss of appetite, &c. The causes of this kind of cutaneous disease, are essentially the same as of the vesicular, but they are more apt to be connected with an impoverished condition of the blood.

#### TREATMENT.

If this disease appears on the head, it is called *porrigo*, or *scald head*. The hair should be shaved close to the scalp, and the head must be thoroughly washed with soap and water, after which the zinc and tar ointment must be alternately applied, morning and evening — the zinc in the morning, and the tar in the evening: the patient should likewise take a full dose of the alterative syrup three times a day. This course, if persisted in, will remove the disease. When the eruption appears on other parts of the body, the nitro-muriatic acid should be first applied, and be followed by the Tar ointment. A mild purgative of Juglandin and Cream of Tartar, also simple syrup of Stillingia and Serophularia, equal parts, should be taken in small quantities during the application of the external remedies. When the pustular eruption is connected with extensive inflammation of the skin, a slippery elm poultice should follow the application of the ointment. Should the disease prove obstinate, equal parts of vegetable caustic and pulverized Sanguinaria, should be sprinkled over the parts before each application of the ointment. If there are constitutional symptoms, they should be treated according to their nature; in most cases, iron and vegetable tonics will be required. The diet should be nutritious, and the surface freely bathed once or twice a day. To remove the small pustules which appear on the face, apply a liniment made of equal parts of ammonia and sweet oil. Or, when they first appear, touch them with ammonia, and cover them with Collodion.

## PURPURA.

here are several varieties of this disease: as simplex, or *petechial scurvy*, *purpura hemorrhagica*, *purpura nautica*, *purpura scarlatina*. By the term purpura, we understand a greater or less number of livid spots on the skin from extravasated blood. In purpura simplex, the effusion is confined to the skin and cellular tissue, mostly occurring on the arms, legs, and breasts. The spots at first are small, resembling flea-bites, and are frequently very numerous. The countenance is pale, and the patient complains of great debility, loss of appetite, irregularity of the bowels, and periodic fever. If the disease is allowed to progress, it will terminate in what is called purpura hemorrhagica, and is described by Dr. Bateman as follows:

“The petechiæ are often of a large size, and are interspersed with vibices, echymoses, or livid stripes and patches, resembling the marks left by the strokes of a whip, or violent bruises. They commonly appear first on the legs, and at uncertain periods afterwards, on the thighs, arms, and trunk of the body; the hands being more rarely spotted with them, and the face generally free. They are usually of a bright red color when they first appear, but soon become purple or livid; and when about to disappear, they change to a brown or yellowish hue; so that, as new eruptions arise, and the absorption of the old ones slowly proceeds, this variety of colors is commonly seen in the different spots at the same time. The cuticle over them appears smooth and shining, but it is not sensibly elevated; in a few cases, however, the cuticle has been seen raised into a sort of vesicles, containing black blood. This more frequently happens in the spots, which appear on the tongue, gums, palate, and inside of the cheeks and lips, where the cuticle is extremely thin,

and breaks from the slightest force, discharging the effused blood. The gentlest pressure on the skin, even such as is applied in feeling the pulse, will often produce a purple blotch, like that which is left after a severe bruise. The same state of the system which gives rise to these effusions under the cuticle, produces likewise copious discharges of blood, especially from the internal parts, which are defended by more delicate coverings. These hemorrhages are often very profuse and not easily restrained, and therefore sometimes prove suddenly fatal; but in other cases, they are less copious; sometimes returning every day at stated periods, and sometimes less frequently, and at irregular intervals; and sometimes there is a slow and almost incessant oozing of blood. The bleeding occurs from the gums, nostrils, throat, inside of the cheeks, tongue, lips, and sometimes from the lining membrane of the eyelids, the urethra and the external ear; and also from the internal cavities of the lungs, stomach, bowels, uterus, kidneys, and bladder. There is the greatest variety, however, in different instances as to the period of the disease, in which the hæmorrhages commence and cease, and as to the proportion which they bear to the cutaneous efflorescence.

“This singular disease is often preceded, for some weeks, by great lassitude, faintness, and pains in the limbs, which render the patient incapable of any exertion; but, not unfrequently, it appears suddenly in the midst of apparent good health. It is always accompanied by great debility and depression of spirits; the pulse is sometimes quickened; and heat, flushing, perspiration, and other symptoms of febrile irritation, recurring like the paroxysms of hectic, occasionally attend. In some patients, deep-seated pains have been felt about the precordia, and in the chest, loins, and abdomen; and in others, a considerable cough has accompanied the com-

plaint, or a tumor and tension of the epigastrium, right or left hypochondrium, with tenderness on pressure, and a constipated, or irregular state of the bowels. But in many cases, no febrile appearances have been noticed; and the functions of the intestines are often natural. In a few cases, frequent syncope has occurred. When the disease has continued for some time, the patient becomes sallow, or of a dirty complexion, with much emaciation, and some degree of œdema appears in the lower extremities, which afterwards extends to other parts. The disease is extremely uncertain in its duration; in some instances it has terminated in a few days, while in others it has continued not only for many months, but even for years."

When the disease runs a rapid course and terminates in death, it is generally dependent upon the occurrence of hemorrhage into some of the vital organs. Such is the disposition to hemorrhage in this stage of the disease, that although a patient may appear convalescent on retiring to bed in the evening, he may be suddenly seized with violent dyspnœa and orthopnœa, which rapidly increases until death ensues by asphyxia. In such a case, there has been a sudden effusion of blood into the pulmonary tissue, producing pulmonary apoplexy.

Or there may be acute hæmoptysis, caused by the escape of blood into the air passages. In this event, the hemorrhage may be controlled, and the patient recover under proper treatment. The hemorrhage may occur in other organs, as the brain, producing apoplexy and death; or, into the cavities of the chest and abdomen. It also occurs into the cellular tissue, producing extensive ecchymosis, inflammation, gangrene, and death; or the purple spot will gradually assume a yellow appearance, absorption of the effused blood occur, and the patient recover.

In purpura nautica, the purple spot mostly occurs at the roots of the hair, on the gums, and mucous membrane



of the mouth and pharynx. In this form of the disease, the gums become spongy and bleed upon the slightest injury, the teeth become loose, and frequently fall from the gums: there is great debility, a sallow countenance, irregular sleep, and night-sweats, followed by fever; the bowels are irritable, and there is mælena. This latter form of it, Prof. J. G. Jones has treated as a separate disease, under the head of Scurvy or Scorbutus; and considers it the same as various writers have described as sea-scurvy: although he does not favor the opinion, at one time very prevalent, that salt water causes the disease; but states, that the cause is generally more of a positive than a negative character, being the want of such articles of food as furnish the system through the medium of the blood, with certain elements indispensable to life and health. He is of the opinion that these deficiencies consist in the lack of vegetable acids.

On comparing the description of scurvy by Prof. Jones, McIntosh, Bateman, and others, with purpura, as it is described by various individuals, the only difference between what is known as sea-scurvy, and purpura, is the circumstances under which it makes its appearance; both evidently depend upon the same pathological condition of the system.

#### CAUSE.

The causes of the different varieties of this disease, seem to depend upon a deficiency of vegetable aliment, and long exposure to a damp atmosphere; also, a lack of due exercise, an unwholesome diet, and anything which tends to an impoverished state of the blood. The influence of improper diet, in developing purpura, has been remarkably exemplified within the past year. Owing to the failure of fruit, as well as the potato crop and other vegetables, bread, butter, and meats have been the principal articles of diet; and purpura, which was hardly known

in the country, has become a prevalent disease. So much so, that the most trifling complaints are attended frequently by active hemorrhage. On examining the blood, it is found to be deficient in fibrine, but feebly disposed to coagulate, and very abundant in serum.

## TREATMENT.

When the disease first makes its appearance in the simple form, little more is necessary than a liberal diet of fresh vegetables, with out-door exercise, and a small amount of Muriated Tinct. of Iron, say from five to ten drops three times a day. Where the disease assumes a hemorrhagic character, the following may be given :

℞ Quinine..... gr. xv.  
 Citrate of Iron..... gr. xxx.  
 Capsicum..... gr. xx.

Mix, triturate, divide into eleven powders, and take one every three hours. The patient should at the same time make a free use of lemonade, and take a free diet of green vegetables, salt meats, eggs, &c. After the powders are all taken, the following mixture should be given :

℞ Port Wine ..... Oj.  
 Phosphate of Lime ..... ℥ss.  
 Carbonate of Iron ..... ℥iij.

Mix, shake well, and take one tablespoonful, three or four times a day. If effusion has occurred into the cellular tissue of one of the limbs, it should be carefully bandaged, and kept constantly wet in a strong liniment of camphor, whiskey, and spirits of turpentine. The bowels should be moved once or twice a week, by the use of Antibilious physic and Cream of Tartar. The body should be frequently bathed in warm or cold water as indicated.

Should hemorrhage occur into the bowels, lungs, or any other organ, the oil of Erigeron may be given in five or

six drop doses every half hour. If there should be *me-læna*, and the oil of *Erigeron* should fail to arrest it, the nitrate of silver pill may be given as directed under the head of typhoid fever. Or from five to ten grains of *Matico*, may be given every fifteen or twenty minutes, until the hemorrhage ceases. If there is much debility, porter, ale, or brandy, should be given in such quantities as the nature of the case may indicate. The patient should avoid all active exercise, and exposure to a damp, moist atmosphere; let him repeat the *Quinine* and Iron from time to time, until the disease is removed.

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## ISCHURIA, RETENTION OF URINE.

In this disease, the urine, accumulated in the bladder, cannot be evacuated without extreme difficulty, or without assistance; when it cannot be evacuated without assistance, the retention is said to be complete; and when it is evacuated without assistance, but with great difficulty, it is said to be incomplete.

### CAUSES.

The causes of retention of urine are various; as inflammation of the bladder, small stones or gravel lodging in the urinary passages, hard *fæces* lying in the rectum, pregnancy, stricture of the neck of the bladder, swelling of the hemorrhoidal veins, paralysis of the bladder, prolapsus uteri, inflammation of the mucous surface of the urethra; it also occurs in female hysteria, and from inflammation of the *meatus urinarius*.

### SYMPTOMS.

When the bladder becomes abnormally distended with urine, there will be a dull pain in the back, with sharp lancinating pains passing through the bladder. As the

accumulation of urine goes on, the pain increases until it becomes excruciating, the arterial system is much excited, and the pulse beats with increased frequency, rising to 100 or 140 beats per minute. The respiration is hurried, and the skin hot and dry. If the uric acid is allowed to be absorbed into the blood, the brain will sympathize with the other constitutional symptoms, producing delirium, and as I have seen in several cases, clonic spasms. Unless the bladder is evacuated, it will become perforated, producing death; or death may occur as the result of zymotic influence upon the blood and nerves.

## TREATMENT.

When the retention is dependent upon inflammation of the bladder, kidneys, or urethra, the bladder should first be evacuated by means of a catheter; after which the disease should be treated, as directed under the head of inflammation of these parts. If it depends upon a stricture, it can generally be overcome by injecting into the urethra, a solution of the extract of Belladonna or Gelseminum:

R Extract of Belladonna..... gr. x.  
 Warm Water..... ʒiij.

Dissolve the extract in the water, and inject one third into the urethra. If this is not soon followed by relief, it may be repeated every fifteen or twenty minutes. If, in a reasonable time, relief is not effected, the Ext. Gelseminum may be used in the same manner. In my hands this treatment in strictures of the urethra has proved efficacious in a large number of cases. Where the disease is occasioned by a gravelly deposit in the bladder,

R Ext. Eupurpurin..... gr. xxx.  
 Cream of Tartar..... ʒj.  
 Apocynin..... gr. xx.

Mix, triturate; divide into ten powders, and give one three times a day in one teaspoonful of Syrup of Iodide of Potassium; the hypogastric and lumbar regions should be bathed every morning and evening in equal parts of sweet oil and spirits of turpentine. Where there is pressure on the neck of the bladder, by fæces lying in the rectum, by pregnancy, or other cause, it should be removed. And then, by the use of Marshmallow, Clivers or flaxseed tea, a cure may be effected. In females, where it is dependent upon irritation of the meatus urinarius, a warm elm poultice, applied to the vulva, and melon-seed tea, will generally effect a cure. If there should be debility of the bladder, with a tendency to paralysis, tonics, combined with Iron, should be used, and the nerves of the back gently stimulated by the application of the electro-magnetic current once or twice a day. During the treatment of retention of urine, whatever the cause may be, the bladder should be evacuated every day by the use of the catheter.

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### ENURESIS, INCONTINENCE OF URINE.

Incontinence of urine, like retention, is often associated with some constitutional weakness. In advanced life it is usually associated with disease of the neck of the bladder, prostate gland, or with paralysis. Incontinence of urine, in children, mostly occurs in the night only, while asleep; and, not unfrequently, in these cases the urine passes off involuntarily under the influence of a dream.

It is said that in such cases the acid property of the urine is the exciting cause, and that there is a strong tendency to gravelly deposits. In young people, where the urine passes off in the night involuntarily, it is usually retained, at any time, with much difficulty, and will be of a very pale color, and far less serous than is natural. In

old people, this difficulty arises from paralysis, produced by injuries of the spine, or over-distension of the bladder, injuries of the neck of the bladder, &c.

## TREATMENT.

In children, where the disease depends upon a changed condition of the urine, the diet should be well regulated, and warm or cold baths given three or four times a week. A syrup of equal parts of *Hydrastus Canadensis* and *Aletris Farinosa* should be given in teaspoonful doses three times a day. Where it depends upon spinal irritation, the irritating plaster should be applied to the spine, and from five to ten drops of the oil of *Erigeron* given three times a day, with a free use of cold baths and friction.

If the bladder is in an irritable state, give the following :

R Dwarf Elder.....	3j.
Indian Hemp .....	3ij.
Marshmallows.....	3j.

Make one pint of syrup, and add one half pint of gin. Dose, one teaspoonful three times a day. If there is an enlarged condition of the prostate gland, one drachm of Iodide of Potassium should be added to the syrup, and the same quantity taken.

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## HÆMATURIA, OR HEMORRHAGE FROM THE URINARY ORGANS.

This frequently occurs in certain epidemics of the malignant type, as in cholera and severe remittent and typhoid fever, in which the spleen and liver are implicated; also in Purpura, Scurvy, and all diseases in which the blood is in an impoverished state. The exciting cause of hæmaturiæ may be of a mechanical nature, that is, a cal-

culus concretion; or it may be from ulcerations of the bladder, kidneys, or their appendages. When the hemorrhage cannot be traced to some constitutional disturbance, it may be considered directly mechanical. This may depend upon a calculus, either causing irritation or wounding some blood-vessel; or the hemorrhage may occur from ulceration of the bladder, by the irritating effect of the urine itself.

#### DIAGNOSIS.

When the patient is laboring under no constitutional disease, that is usually accompanied by hemorrhage, or has not been afflicted with calculous affections, if he complains of pain in the urinary organs, and voids blood with the urine, mixed with mucus, and especially if mixed with purulent matter, a breach of surface must exist somewhere in the urinary apparatus. Having ascertained the cause of the hemorrhage, its seat should be sought for. When there are sharp twisting pains along the line of the ureter, darting to the urethra and testicles, accompanied with nausea and vomiting, it may be reasonably supposed that it depends upon the presence of calculus in the ureter or kidneys. On the other hand, when the hemorrhage comes on after exercise, and there is occasional retention, accompanied by a twinging pain in the penis, there can be but little doubt that the hemorrhage is caused by stone in the bladder. Where the hemorrhage is from the kidneys, the first urine that flows is generally clear, the blood mostly passing at the close of micturition.

#### TREATMENT.

The treatment of hæmaturia will depend upon the cause, the degree and locality.

Where the disease is dependent upon scurvy or purpura, it should be treated as directed under that head, with the addition of astringents, such as an injection of a weak



solution of Matico into the bladder, and the oil of Erigeron taken internally. If occurring as melæna, the effect of obstruction of the liver and spleen, give the following :

R Muriated Tinct. of Iron.....	ʒij.
Quinine.....	gr. xx.
Water.....	ʒiij

Mix, and give one tablespoonful every four or five hours until the active stage of the disease is passed. After which, the following mixture :

R Cin.....	Oj.
Sugar .....	lbj.
Water .....	Oj.
Aletrin .....	ʒj.
Euonymine.....	ʒij.

Mix, and give one tablespoonful three or four times a day. The region of the liver and spleen should be bathed two or three times a day in a liniment composed of sweet oil and spirits of turpentine. Where hæmaturia is connected with a gouty diathesis, a free purgative of Podophyllin and Cream of Tartar may be given in the commencement of the treatment, followed by full doses of the oil of Erigeron, until the hemorrhage ceases. After which, nitro-muriatic acid and Euonymine should be given. If calculus in the kidneys is the cause of the disease, a strong decoction of the Queen of the Meadow will dislodge it and arrest the hemorrhage; after which, mucilaginous diuretics should be given, such as marshmallow, flaxseed, &c. When the cause of hæmaturia is seated in the bladder, it should be injected first with warm water, afterwards with a strong solution of Matico mixed with starch-water. The back and loins being thoroughly bathed with a liniment prepared as follows :

R Oil of Capsicum.....	gtt. x.
Alcohol.....	Oss.
Oil of Origanum .....	ʒiij.

Mix, and use as heretofore directed. If there is much inflammation of the bladder, scarify and cup over that region, and apply hot packs. At the same time give Aconite or Veratrum until the symptoms are controlled. If the bladder should become distended with a large amount of coagulated blood, recourse must be had to a large-sized catheter; and by the aid of an exhausting syringe and an occasional injection of the bladder with cold water, the coagula may be removed. Should the hemorrhage become active while thus evacuating the bladder, it may be arrested by injecting a solution of Matico into the rectum.

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## CONGESTION AND INFLAMMATION OF THE UTERUS.

This disease is but imperfectly understood; and more frequently than otherwise passes unobserved both by the patient and her medical attendant. In a great majority of cases it is treated by physicians as prolapsus uteri, amenorrhæa, dysmenorrhæa, menorrhagia, or leucorrhæa; the primary cause of the disease is overlooked, and the symptoms only receive attention. Hence it is that but little if any benefit is derived from the ordinary course of medication in this class of cases.

The hydropathists have acquired some reputation for treating this class of cases, and in many instances they have had superior success. Their success, however, is not dependent upon a more extensive knowledge of the affections so much as the remedy upon which they rely being better adapted to relieve this peculiar pathological condition of the uterus, than the remedies generally used for this purpose.

Congestion of the uterus, like congestion of other organs, is a disease of frequent occurrence, and is caused by the

accumulation of blood in the veins and capillaries. The congestion is generally combined with infiltration into the cellular tissue of the uterus, producing œdema of the uterus, and in some cases the œdema is very considerable.

#### SYMPTOMS.

On making a vaginal examination of the uterus, a complete congested appearance is manifest. The uterus is enlarged and vesicular, and in places the veins have a varicose appearance. In the incipient congestion of the uterus the appearance very much resembles that of early pregnancy. The uterus is tender upon pressure, and if the disease is of long standing, the broad ligaments and vagina also present a similar congested condition. In other cases there is excoriating granulations, or ulceration of the neck of the uterus and its lining membrane. Congestion of the uterus, like the congestion of other similar tissues, is followed by pathological changes, such as an increased afflux of blood to the part; a loaded condition of the capillaries, the blood circulating with less and less force until it finally ceases, and a complete barrier is formed to the further circulation of blood in the part. At this stage inflammation is said to commence. But where congestion assumes a chronic form, as it mostly does in the uterus, the vessels, after having been thus distended for some time, contract upon their own contents, forcing the more fluid portions of the blood out of the vessel into the adjacent areolar and cellular tissues; and in this way the parenchyma of the uterus becomes extensively infiltrated with the fluid portion of the blood. Where the congestion extends to the vagina and inner membrane of the uterus, a similar exosmosis occurs from the congested capillaries of the parts; instead of being retained in the parenchyma, it escapes into the cavity of the uterus and vagina, mixing with the mucus, and thus constituting what is known as the whites. In case

the blood is anæmic, and the patient of a scrofulous cachexia, the salts of the blood held in solution will make their escape with the serum, and, mingling with mucus, cause a mucopurulent or muco-serous discharge. If there is abrasion of the uterus or its appendages, the sanious secretion from the ulcer, mixed with the disintegrated tissues of the parts, often renders the discharge not only offensive but exceedingly irritating, denuding the vagina of its mucous surface and inducing either an acute or chronic inflammation. The constitutional symptoms are a sense of weakness, weight, or pain in the back; the patient complains of nervousness, pains in the head and shoulders, often changing to different parts of the body. The functions of the stomach and bowels become deranged; the countenance is sallow, and the skin has a dry and husky appearance; the lips lose their color, and the eyes their natural brilliancy; the feet and hands are mostly cold, although in some cases, and in some portions of the day, they are hot and burning. The menses are mostly irregular either in quantity, quality, or time of occurrence. I have observed all these symptoms in connection with congestion of the uterus. If the disease is allowed to advance, palpitation of the heart will occur, with cough, bronchial irritation and expectoration of mucus. At this stage of the disease, the increased weight of the uterus, together with the relaxed condition of the muscular tissue, causes the uterus to gravitate into the pelvis, resulting in what is usually known as prolapsus uteri. The lower floor of the abdominal cavity thus giving way, enables the whole contents of the abdomen and thorax to settle from their normal position. The bowels, stomach, liver, spleen, heart, and lungs, all being thus displaced, put the pneumogastric nerve and upper portion of the lung upon a stretch, producing a constant irritation and materially increasing the cough, which before was considerable. If this condition of things is allowed to continue, the blood

soon becomes impoverished, owing to a defective appetite, irregular respiration and leucorrhœa, and a tuberculous deposition occurs in the lungs. In cases where the uterus has become impregnated, the symptoms frequently somewhat abate, although in several cases I have known them to be very much aggravated, and maintain an uncommon obstinacy during the entire stage of gestation. Where the uterus remains thus congested during pregnancy, the disease is very liable to terminate in inflammation immediately after delivery, proving very obstinate, and, unless properly treated, disastrous to the patient. In these cases there is acute pain just above the pubes, quick pulse, hot skin, and retention of urine, either partial or complete. The tongue will soon be covered with a dark brown coat, and many times there are convulsions. The bowels are constipated, and in many cases there is nausea and vomiting.

If the disease is not controlled, delirium, coma, and death ensue. The inflammation may be less acute, extending to the peritoneum, causing a tympanitic condition of the bowels, suppression of the lochia and milk, with violent fever. There are other points of great interest connected with this form of uterine derangement, which the limits of this work will not allow me to consider.

#### CAUSES.

There are a variety of causes which may produce this condition of the uterus; such as the frequent use of emmenagogues, which contain mercury, exposure of the feet to the damp and cold earth by wearing thin shoes; the practice of dressing in such a manner as to compress the waist, thus preventing the return of the venous blood to the heart by the superficial veins, also obstructing the capillary circulation; hence the blood is forced through the deep capillaries, inducing congestion of the uterus. It may also be caused by repeated abortions, by excessive

venery, by cold and exposure; in short, anything which will induce it in any of the internal viscera, will produce it in the uterus.

#### TREATMENT.

In commencing the treatment of this disease, the cause should be constantly kept in view, and as far as possible be removed. To remove the congestion, a plaster should be applied to the abdomen over the uterus, composed of the following materials :

R Gum Galbanum.....	℥ij.
White Pine Gum.....	℥j.
White Wax.....	℥jss.

Melt the gums and wax together, add one drachm of pulverized blood-root, and stir until it becomes thickened; spread a coat of it upon a thin piece of leather, large enough to cover the uterus, and apply. It should be renewed from time to time until relief is effected. At the same time, give the following compound :

R Gelsemin.....	gr. ij.
Bebeerine.....	gr. xxx.
Caulophyllin .....	gr. x.
White Sugar.....	gr. xxx.

Mix, triturate, divide into twelve powders, and give one every six hours. During the administration of these powders, vaginal injections of the cold infusion of Cinchona should be used two or three times a day. During the early part of the treatment, a thorough hand-bath should be taken every morning as indicated; also an occasional sitz bath. The above treatment should be pursued for ten or fifteen days; the following may then be substituted :

R Carbonate of Iron.....	℥j.
Pulv. Queen of the Meadow .....	℥ij.
Cream of Tartar.....	℥j.



Port Wine.....	Oj.
Sugar .....	lbj.
Gin.....	Oj.

Dose, one tablespoonful three times a day. At the same time :

℞ Fol. Jugland Regiæ, or Fresh Walnut leaves. ʒvj.	
Port Wine .....	Oj.

Make a Tincture, and use a syringe full, as vaginal injection, once or twice a day. The plaster should be removed, and a wet girdle worn around the lower portion of the abdomen and back. During the entire course of treatment, the bowels should be regulated by the use of neutralizing mixture. If any of the symptoms, described as dependent upon this disease, should remain after using the above remedies for a reasonable length of time :

℞ Macrotin .....	gr. xx.
Senecin .....	gr. x.
Capsicum .....	gr. xx.
Vallet's Ferruginous Mass .....	ʒj.

Mix, and form a mass. Make three-grain pills, and let one be taken three times a day, alone, or in connection with other medicines as indicated. If there should be ulcers upon the vagina or uterus, the speculum should be introduced, and the vegetable caustic be applied, after which the ulcer should be covered with powdered slippery elm. Much care will be required in making this application, to prevent the caustic from coming in contact with parts not diseased. If there should be a scrofulous diathesis, connected with this disease, Stillingia and Iodide of Potassium may be used in connection with the other remedies. The diet in any case should be free and nutritious. In case the congestion should terminate in a latent form of inflammation, Muriated Tinct. of Iron, Veratrum, Cinchonine, and Cornine, in connection with the local applications, as directed under the head of congestion.



Where active inflammation ensues, a full cathartic of Podophyllin and Cream of Tartar should be given in the commencement, followed by cold packs to the bowels, and full doses of Muriated Tinct. of Iron and Quinine. If convulsions are connected with the inflammation, Gelsemin, Lobelin, and Belladonna, should be used in sufficient quantities until that symptom is relieved. During the inflammatory stage, the patient must be kept quiet, but in the congestive form of the disease, moderate exercise should be taken.

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### CESSATION OF THE MENSES.

At the period of life when the menses should cease, the discharge usually becomes irregular; sometimes being obstructed for two or three months or more. Among the symptoms of this period, are nausea and vomiting, swelling of the abdomen, tenderness of the breasts, &c. These symptoms are frequently mistaken for pregnancy; connected with the above, there are frequently uterine pains, with dragging sensation in the back and loins; at times there is fever, accompanied by violent headache, a full, strong pulse, a loaded tongue, and symptoms of indigestion. The nervous system generally sympathizes with the other affections, causing nervous headache, neuralgic pains, periodic diarrhœa, and costiveness. These symptoms may all be mitigated by a sudden return of the menses, which may last much longer than is natural, and also be more profuse; upon their cessation they may again return in an aggravated form.

This period in female life is truly designated the critical period; and, although this is necessarily the case, owing to the important physiological changes which occur at this time, yet it is frequently made much more so, from the abuse of quack medicines.

TREATMENT.

When the symptoms are slight, but little more will be necessary than to regulate the bowels and diet, bathe the surface, and occasionally to wear a pack on the lower portion of the bowels, wet with equal parts of water and whiskey; but, where the symptoms are severe, in addition to this, a purgative of anti-bilious physic should be taken, and afterward the following compound:

R Aletrin.....	gr. xxx.
Cypripedin .....	gr. xx.
Pterin.....	gr. xxx.
Carbonate of Iron.....	gr. xxx.
White Sugar.....	℥iij.

Mix, and add to one pint of Port-wine. Dose, one tablespoonful three times a day. Also,

R Irisin .....	gr. xxx.
Hyosciamin.....	gr. v.
Podophyllin .....	gr. ij.
Extract of Dandelion sufficient to make thirty pills. Let one be taken night and morning.	

If neuralgie pains should occur,

R Belladonna.....	gr. j.
Quinine.....	gr. xv.
White Sugar.....	gr. xx.

Mix, triturate, divide into eight powders, and take one three times a day. Constitutional symptoms of every variety manifesting themselves during the period, should be met with such remedies as are indicated.

## DISEASES OF THE OVARIES.

The ovaries are subject to a number of diseases, as *dropsy*, sarcoma, hypertrophy, atrophy, &c. Among the most common is dropsy; hence, I shall confine this article mostly to that disease.

## SYMPTOMS.

A slight fugitive pain will be felt in the region of the ovaries. The ovary will be found to be larger on one side than on the other. This tumor, which is but very small at first, gradually increases in size, until it finally presses upon the uterus and vagina, causing uterine and vaginal irritation, difficult micturition, and prolapsus ani. On examination, the tumor may be felt between the vagina and rectum. This is particularly the case before it becomes very much enlarged. Sometimes this tumor ascends into the cavity of the abdomen, and presents very much the appearance of the gravid uterus. The tumor may gradually increase until it becomes of an enormous size.

A specimen is now in the museum of the Eclectic College of Pennsylvania, of a tumor which grew to such an enormous size as to contain over three gallons of fluid. In some instances, the fluid becomes spontaneously absorbed. This occurred in a case which came under my observation, where the ovarian cyst was of a size sufficient to hold a gallon.

In other cases, inflammation occurs in the cyst, which may produce death. Sometimes the cyst adheres to the parietes of the abdomen, to the bowels, or vagina; in this event, occasionally, a fistulous opening occurs, and the fluid makes its escape; but as the internal membrane of the cyst is so organized as to constantly secrete this gelatinous fluid, a discharge will be maintained until death ensues from exhaustion.

## TREATMENT.

I do not propose to speak of the surgical treatment of this disease, but to confine my remarks entirely to that form of medical treatment which has proved successful in my hands in removing the disease in its early stage.

In the commencement, a pad should be placed over the tumor, kept in its place and caused to make gentle pressure upon it, by a bandage passing around the body. The pad should be wet with the Tinct. of Iodine before applying it, and afterwards once or twice a day throughout the entire treatment. The bandage should be so adjusted as to maintain a constant pressure. The patient may also take the following syrup :

℞ Syrup of Iodide of Iron..... Oss.  
Syrup of Stillingia..... Oss.

Dose, one teaspoonful four or five times a day. The bowels should be evacuated once or twice a week with Cream of Tartar and Podophyllin. When this course has been pursued for four or five weeks, substitute the following :

℞ Syrup of Marshmallow..... Oj.  
Iodide of Potassium..... ℥ij.

Mix, and give one teaspoonful four times a day, occasionally using the purgative as before.

This treatment persisted in, has in my hands proved successful in several cases of ovarian dropsy, and in some where it was considerably advanced. The pressure, in connection with the Iodine, acts as a constant stimulant to the absorbents, and by the alterative effect of the medicine, the cyst ceases to secrete the gelatinous fluid.

## PLATE FIRST.

*Division 1.*

Fig. 1. The upper part of this cluster of figures is intended to represent the uninflamed follicle; the lower the commencement and progress of inflammation, and its termination in the formation of matter. 2. The enlarged and indurated tubercles, (*A. indurata*,) with matter formed in their centre, which occur in bad constitutions. 3. Inflamed and suppurated follicles, forming sycosis on the beard. 4. The appearance of spots of porrigo, where no fluid secretion or scab has been formed. 5. The partially denuded scalp of long-established cases of the latter, where scabs have been allowed to accumulate, and where great irritation prevails, the remaining hairs insulated by pustules.

*Division 2.*

Fig. 20. The two inferior spots representing the first appearance of the spots of lepra, before the first scale separates. The superior large, round, and scaly; the disease in a spreading state. 21. Psoriasis. 22. An enlarged representation of the morbid and discoloured cuticle, forming ichthyosis. The numberless fissures caused by the cracking of this hard, dry substance, and dividing it into thousands of pieces, are well represented.

*Division 3.*

Fig. 11. *Porrigo favosa*. 12. *P. larvalis*, both from cases of considerable standing. 13. The pimples of infants, some

of them surrounded by considerable inflammation; their representation in clusters connected by patches of inflamed skin, (*S. intertinctus*, &c.,) has been omitted. 14 and 15. The pimples of adults, termed lichen; the first of these, as it sometimes occurs on the arms and other parts covered by the finer kind of hair, each hair occupying the centre of a pimple; the second as it appears on other parts. 16. The pimples of prurigo, the tops of some of them scratched off, leaving a peculiar, little, black, bloody scab on their apices. 17. Two of the common forms of urticaria. 18. The vesicles of impetigo in an advanced and partly flaccid state. 19. The carbuncular furuncle.

*Division 4.*

Fig. 23. The inferior portion, exhibiting an enlarged view of the vesicles of impetigo. The superior, the disease in an advanced stage, with the scab partially covering it. 24. The vesicles and enlarged pustules of the itch. 25. The appearance of the skin in *eczema mercuriale*. 26. The tubercle of *erythema nodosum*.

*Division 5.*

Fig. 6. Petechiæ, or purpura simplex. 7. The enlarged spots of purpura hemorrhagica. 8. Different stages or degrees of the ecchymatous eruption. 9. The conical scabs of rupia. The similarity of character between the two latter, is rendered very distinct. 10. Pompholyx. The superior vesicle discoloured by the admixture of blood from the vessels of the surface.

## DISEASES OF THE SKIN.

## CLASSIFICATION.

There are few diseases in which there is more confusion relative to their arrangement, than diseases of the skin. In the plate representing skin diseases, I have endeavoured to so arrange them that all the forms could be viewed at a single glance. In order to do this I was under the necessity of arranging them under the head of five distinct divisions, which, although not representing all the minute subdivisions of dermatologists, shows every form of skin affection in some stage of the disease, which has fallen under my notice.

In the classification of integumentary or skin diseases I shall adopt that which has been arranged by Willan; not that I consider this arrangement free from objections, but because it is that which is ordinarily adopted by medical writers and teachers, and may enable us to study these divisions as well as any other system that we could adopt.

*Diagnosis of Skin Diseases.*—The diagnosis of skin diseases is of primary importance, from the fact that no successful treatment can be instituted, unless an accurate discrimination be made between its different forms.

In Willan's system, cutaneous diseases are divided into eight orders, characterized by the form of the eruption, namely:—

Papulæ,	Vesiculæ,
Exanthemata,	Tuberculæ,
Squamæ,	Pustulæ,
Bullæ,	Maculæ.

The distinctive features of the eruption, by which these orders are characterized, he defined as follows; and here I may again remark that his nomenclature and definitions are still in use, and generally recognised as correct:—

“*Papula*, (Pimple.)—A very small and acuminate ele-



vation of the cuticle, with an inflamed base, not containing a fluid, nor tending to suppuration.

"2. *Squama*, (Scale.)—A lamina of morbid cuticle, hard, thickened, whitish, and opaque.

"3. *Exanthemata*, (Rash.)—Red patches on the skin, variously figured, in general confluent, and diffused irregularly over the body, leaving interstices of a natural colour.

"4. *Bulla*, (Bleb.)—A large portion of the cuticle detached from the skin by the interposition of a transparent, watery fluid.

"5. *Vesicula*, (Vesicle.)—A small, orbicular elevation of the cuticle, containing lymph, which is sometimes clear and colourless, but often opaque and whitish, or pearl-coloured.

"6. *Pustula*, (Pustule.)—An elevation of the cuticle, with an inflammatory base, containing pus.

"7. *Tubercula*, (Tubercle.)—A small, hard, superficial tumour, circumscribed and permanent, or proceeding very slowly to suppuration.

"8. *Macula*, (Stain.)—A permanent discolouration of some portion of the skin, often with a change of its texture, but not connected with any disorder of the constitution."

Alibert, in his natural arrangement, considers cutaneous diseases to resemble a tree, which he terms *l'arbre des dermatoses*, and the branches of which constitute the various divisions or groups, which are subdivided into genera. His primary groups, which are twelve in number, he designates as follows:—

Dermatoses	Eczemateuses,	D. Féroleuses,
"	Exanthemateuses,	" Strumeuses,
"	Teigneuses,	" Scabieuses,
"	Dartreuses,	" Hémateuses,
"	Cancéreuses,	" Dyschromateuses,
"	Lèpreuses,	" Hétéromorphes.

Bielt, the immediate and most celebrated pupil of Alibert, soon perceiving the difficulties which the complicated

system of his nature, though based on the natural affinities of the various eruptions of the skin, threw in the way of their successful diagnosis, forsook it for that of Willan, which he modified, and so far improved, that all the artificial systems of classification which have been proposed since his time include the changes made by him. Viewed abstractedly, it is manifest that a class of diseases of the skin which, as a natural system is supposed to do, takes into account not merely the form, but the essential nature and pathological characters of a cutaneous eruption, should possess many advantages, both practical and theoretical, over an artificial arrangement which takes cognizance merely of the alterations of the skin which cause the eruption, or, in other words, regards solely the apparent changes in the cutaneous structure of the part affected. Consequently, we find that most modern writers on the subject have bestowed their attention on the construction of a perfect *natural* system, but hitherto, in my opinion, without success; amongst them all there are, I think, two only at all deserving of notice,—that of Erasmus Wilson in England, and of Cazenave in France. Wilson adopts, as the basis of his arrangement, the anatomy and physiology of the skin, a groundwork which, owing to the additions recently made to our knowledge of this structure by microscopic investigation, and the degree of certainty which extended observation has stamped upon it, has been well employed by him, and renders his system of classification justly entitled to be designated a *natural* one. He constitutes four *primary* divisions of the subject, namely:—

1. Diseases of the Derma.
2. Diseases of the Sudoriparous Glands.
3. Diseases of the Liviparous Glands.
4. Diseases of the Hairs and Hair Follicles.

Of the first, five *secondary* divisions are made:—1st, *Inflammation* of the Derma; 2d, *Hypertrophy of the Papillæ*

of the Derma; 3d, *Disorders of the Vascular Tissue* of the Derma; 4th, *Disorders of the Sensibility* of the Derma; 5th, *Disorders of the Chromatogenous Functions* of the Derma.

The first of these divisions constitutes six groups, namely: a, *Congestive Inflammation*, divided into two sub-groups; the first including those affections, in which both the mucous membranes and the derma are inflamed, and which are *attended with* constitutional symptoms of a peculiar kind; and the second, those in which the derma alone is engaged, and in which there are *no* specific constitutional symptoms; b, *Effusive Inflammation*; c, *Suppurative Inflammation*; d, *Depositive Inflammation*; e, *Squamous Inflammation*; f, *Inflammation from the presence of Acari*.

Of the second primary divisions, three *secondary* are constituted, as the diseases are attended with—1st, *Augmentation*; 2d, *Diminution*; 3d, *Alteration*; 4th, *Retention* of Secretion; and 5th, in which the *Glands and Adjacent Tissues are inflamed*.

And the fourth constitutes six *secondary* divisions:—1st, *Augmented Formation*; 2d, *Diminished Formation*; 3d, *Abnormal Direction* of the Hair; 4th, *Alteration of Colour*; 5th, *Diseases of the Hairs*; and 6th, *Diseases of the Hair Follicles*.

M. Cazenave, adopting likewise an anatomical basis for his *natural* system, arranges diseases of the skin in eight groups:—

- |                          |                                |
|--------------------------|--------------------------------|
| 1. Inflammations.        | 5. Hemorrhages.                |
| 2. Lesions of Secretion. | 6. Lesions of Insensibility.   |
| 3. Hypertrophies.        | 7. Foreign Bodies.             |
| 4. Deteriorations.       | 8. Diseases of the Appendages. |

The first group contains four orders:—1st, *Non-Specific Eruptions*, which may exist in a chronic state; 2d, *Non-Specific Eruptions*, always existing in a chronic state; 3d, *Acute Specific Eruptions*; 4th, *Chronic Specific Eruptions*.

The second group is divided into three orders:—1st, *Le-*

sions of the Follicular Secretions; 2d, Lesions of the Epidermic Secretions; 3d, Lesions of the Colouring Secretions.

The third group, which constitutes but a single order, is defined to consist in an abnormal development of the parts affected.

The fourth group contains those diseases which have a tendency to destroy the part attached.

The fifth group is characterized by the presence of blood, more or less altered, without its proper vessels.

The sixth group is divided into two orders:—1st, General or Local Hyperæsthesia; 2d, Anæsthesia.

In the seventh group are placed those diseases which seem to depend on the presence of parasitical insects, or animalecules.

The eighth consists of two orders:—1st, Diseases of the Hair; 2d, Diseases of the Nails.

In order to a more correct understanding of the nature and treatment of skin diseases, I purpose considering each affection by itself, and giving a proper treatment for its cure.

1st. *Erythema*.—Erythema consists in an eruption of superficial red stains, or patches, slightly elevated, and attended with heat, tingling, and sometimes slight pain. It is not usually connected with constitutional symptoms, unless it appears as the effect of some specific poison in the blood, as mercury, antimony, lead, &c. It may be produced by exposure to harsh winds, hot sun, &c.

*Treatment*.—The treatment consists in the external application of equal parts of lime-water and sweet oil, mixed; or a little glycerine. In cases where the erythema appears to be extensive, the bowels should be opened by means of a little neutralizing mixture and anti-bilious physic, and a low diet prescribed for a few days.

2d. *Erysipelas*.—(Treated on in another part of the work.)

3d. *Urticaria*.—(Also, in another part of the work.)

4th. *Roseola*.—Roseola, or Rose-Rash, consists in very slightly elevated rose-red patches, of irregular shape, which may be confined to a small portion of the body, or extend over the entire surface. In ordinary cases there are but few constitutional symptoms; but in a few cases I have observed rose-rash ushered in by chills, fever, active pulse, anorexia, and a disordered state of the bowels. This disease may occur at any age, but is mostly confined to children.

*Diagnosis*.—The only disease with which this is likely to be confounded, is scarlatina; from which it may be distinguished by the absence of sore throat, the bright red appearance of the eruption, and the less violent constitutional symptoms generally.

*Causes*.—It may be produced by irritating substances in the bowels, such as worms, &c., or by any substance which may irritate the skin. I have known roseola to occur as the result of irritation produced by wearing flannel next the skin.

*Treatment*.—A warm bath, followed by a little lime-water and sweet oil to the surface, together with a little antibilious physic, and cream of tartar to open the bowels, a low diet, and a few doses of aconite to control the febrile symptoms, is all that is necessary in the treatment of this disease.

5th. *Eczema*, (Scale, or Humid Tetter).—This disease is one of the most frequent forms of skin affections met with by the physician. Dermatologists divide it into Eczema Simplex, Rubrum, Faciei, and Capitis. Eczema simplex consists in the appearance of minute, shining vesicles, not larger than the head of a small pin, on different portions of the body. They are usually clustered together, and surrounded by red areola. In from thirty-six to forty-eight hours the fluid becomes opaque, and in from three to four days dries up, and forms light, thin scales, and desquamates. In most cases a fresh crop appears as soon as the

first is matured, which develop and proceed through the same course; in which event yellow crusts form over the diseased patch, and chronic tetter exists for weeks, or even months. In simple eczema there is usually but little fever, or constitutional disturbance, although the diseased part may be irritated and inflamed.

*Eczema Rubrum*.—This is a more violent form of the disease, in which there is frequently fever, and other constitutional symptoms peculiar to eruptive diseases. The vesicles are much larger; and when the fluid becomes opaque, they rupture and form large, yellow crusts.

*Eczema Faciei*, as the term indicates, mostly appears upon the face, and is confined generally to young children. It is frequently accompanied with fever, and assumes the general appearance of eczema rubrum.

*Eczema Capitis* is that form which is confined to the scalp, and presents the ordinary characters of eczema on other portions of the body.

*Diagnosis*.—Eczema may be confounded with herpes, from which it may be distinguished by the following symptoms:—In herpes the vesicles are much larger, and the patches are always well defined. When it appears on the fingers, it is liable to be confounded with scabies, from which it may be distinguished by the excessive tingling and itching, peculiar to itch, and the absence of inflammation around the vesicles.

*Treatment*.—On commencing the treatment of eczema, the bowels should be opened by means of some mild laxative, the skin thoroughly bathed, and the patient placed upon a well-regulated, but nutritious diet. After which, the following internal treatment should be instituted:—

R. Juglandin .....grs. xx.  
 Quinine .....grs. x.  
 Neut. Mixt.....℥ij.  
 Syr. Simplex .....℥ij.

Mix. Sig.—One teaspoonful every two or three hours. For children, one-half the usual quantity.

As an external application, take acetie tincture of sanguinaria, quantity sufficient to keep the part thoroughly saturated by means of lint. This treatment, if thoroughly applied, will most speedily cure all the forms of eezema. In some cases, where the part is irritable, the patient will not tolerate the lotion. In that event I have been in the habit of applying the wash by means of a camel's hair pencil, four or five times a day, and after each application cover the part with glyeerine. In case the disease should prove protracted, the quinine and juglandin mixture should be alternated with the following:—Take essential tincture of scrofularia marilandica, one ounce; simple syrup, four ounces. Mix, and give one teaspoonful every two or three hours. In cases where there is great local inflammation, previously to applying the sanguinaria wash, the inflammation may be subdued by means of a slippery elm poultice applied to the part, and kept moistened with the tincture of lobelia. In treating eezema capitis of young children, it is well to remove the hair, so as to enable the medicine to come in contact with the diseased part.

*Herpes.*—Herpes, by medical writers, has been divided into Herpes Phlyctenoides, Zoster, and Circinnatus. Herpes phlyctenoides is characterized by a smarting, burning pain, on a small patch of the skin, which becomes covered with small blebs, or vesicles, in the course of twenty-four hours. The fluid usually becomes opaque and mucopurulent, and is discharged in the course of two or three days, forming a dark-brown scab. This form of the disease very frequently appears on the lips, especially after a protracted intermittent or remittent fever, and in females upon the outer lips of the pudendum.

Herpes Zoster, or Shingles, mostly appears upon the centre of the body, and is much more severe than the previous form, being usually ushered in by rigours, chills, and fever, with a burning, smarting sensation in some portion of the



body, frequently about the umbilicus, which becomes red, tumefied, and, in the course of twenty-four hours, covered with vesicles, as previously described. In some cases there are several of these inflamed patches appearing on different parts of the body at the same time, which gradually extend and coalesce until they nearly form a girdle around the body. In these cases there is frequently loss of appetite, continued fever, constipation, headache, &c.

*Herpes Circinnatus, or Ring-Worm.*—This derives its name from the shape of the group in which the eruption appears. It is accompanied with but few constitutional symptoms, and occurs mostly on the neck and face of children; although it may appear on other parts of the body, and in adults.

*Causes.*—But little is known relative to the cause of herpes, as well as many other skin affections. It has been attributed to the vitiated state of the system, produced by over-mental excitement, bodily fatigue, impoverished diet, friction and irritation from clothes, scrofulous constitutions, &c.

*Diagnosis.*—The only disease with which it is likely to be confounded is eczema, from which it may be distinguished by the vesicles being larger, more globular, and the patches better defined.

*Treatment.*—In the treatment of the simpler forms of herpes, but little more is necessary than the application of some stimulating and astringent lotion, such as the following:—Take acetate of lead, ten grains; pure water, one ounce; tinct. of aconite, one dram; mix, and apply to the part five or six times a day. In cases of herpes labialis, the following paste is almost a specific:—Take sulphate of hydrastin, ten grains; glycerine, one ounce; mix, form a paste, apply six or eight times a day. In herpes zoster the stomach should be thoroughly cleansed by the comp. acetic tincture of lobelia, the bowels opened with small doses of anti-bilious

physic and podophyllin; and, where it is convenient, the patient should take a hot bath. If the hot bath cannot be given, the alkaline sponge bath should be resorted to. The portion of the body covered by the eruption should be bathed in a solution of sulphate of zinc. Take sulphate of zinc, one ounce; water, one pint. Bathe the parts in this solution frequently; and if there is much inflammation, a slippery elm poultice should be applied after each bathing. If there is fever, it should be controlled by the use of aconite or veratrum, and in case the disease proves obstinate, quinine and iron should be given. Where the eruption is very severe, I have used the following ointment:—Take oxide of zinc, two drams; sulphate of sanguinarina, one-half dram; lard, one ounce; mix, form an ointment, and apply to the part; followed either by a hot pack, or a warm slippery elm poultice.

*Pemphigus*, (Watery Blebs.)—(See plate 1st, skin disease, division 4th, fig. 23.) Acute Pemphigus is ushered in with febrile symptoms and general malaise, loss of appetite, and derangement of the secretions, which, on the second or third day, are followed by an eruption on the thighs and lower part of the abdomen, of a bright red colour, which is usually accompanied with a smarting or burning sensation. In the centre of this eruption a minute vesicle appears, which rapidly extends until it covers nearly, and in some cases the entire inflamed patch. These blisters are at first round, and of a bright transparency. In the course of from twenty-four to forty-eight hours the fluid contained in the vesicle becomes opaque, the bullæ break, the fluid escapes, leaving a red and excoriated surface, which soon becomes covered with a yellowish thin scab, which falls off in from five to six days. In some instances several successive crops of these blisters occur, which pass through the same process. Dr. Willan has described two forms of pemphigus, which are modifications of this—such as pemphigus

pompholyx, where the fever is severe, and pompholyx benignus, when the fever is mild. Pemphigus chronicus is the name given to the disease by Dr. Neligan, when it is of long standing.

*Causes.*—The causes of pemphigus are always connected with constitutional derangements. It is produced by bad diet, by the long-continued use of poisonous mineral medicines, and, in short, anything that tends to debilitate the constitution, and vitiate the fluids, may develop pemphigus.

*Pathology.*—Pemphigus is an inflammation of the superficial layers of the derma, which result in the effusion of serum and the formation of blebs.

*Treatment.*—The treatment of pemphigus depends much upon the cause, which should be carefully sought, and as far as practicable removed. The surface of the body should be bathed, the bowels opened by means of one or two grains of apocynin, and the inflamed surface covered with a slippery elm poultice, kept moist with the tincture of lobelia. Where the constitution is feeble, iron, chimaphilin, quinine, cod liver oil, and alumin, should be given in such quantities and combinations as the nature and constitution of the disease may require. Where pemphigus occurs in children, it is more frequently than otherwise dependent upon deficient nutrition; and in order to successfully treat the malady, especial attention should be given to the diet and habits of the patient,—fresh air, out-door exercise, and frequent bathing, being essential auxiliaries in the treatment.

*Rupia.*—Rupia is a small blister, or vesicle, the size of a chestnut, which appears upon the inflamed base, and contains from the first an ichorous, semi-opaque fluid, which dries into a dark-brown crust, falls off, and leaves an indolent ulcer. (See division 5, figs. 9 and 10, plate of skin diseases.) Rupia has been divided into simple and prominent; but as there is no practical importance connected with this division, we omit it.

*Causes.*—This disease is always connected with a vitiated constitution, and is dependent more frequently than otherwise upon imperfect diet; although chronic diseases, such as syphilis, phthisis, dyspepsia, and poisonous medicines not unfrequently produce it.

*Diagnosis.*—The only diseases with which rupia is likely to be confounded, are pemphigus and ecthyma. From pemphigus it may be distinguished by its seldom having more than one bleb, or blister. In pemphigus they are numerous. Ecthyma is an inflammatory pustular eruption, and the scabs formed are flat and small.

*Treatment.*—As rupia might be considered more of a symptom of some other disorder than an idiopathic disease, the principal indications of treatment consist in removing the constitutional affection upon which rupia depends, such as correcting the digestive organs, nourishing and enriching the blood, &c., &c. The local applications should consist of emollient poultices, kept constantly moist with the tinctures of hydrastin, baptisin, and myrrh. When rupia degenerates into an indolent ulcer, in connexion with the constitutional treatment the parts should be washed once or twice a day in a weak solution of sulphate of zinc, and a poultice applied, composed of equal parts of pulverized bayberry, white pond lily, and slippery elm. The diet should be of a nutritious character, and the system invigorated by frequent baths, friction, and fresh air.

*Pustulæ.*—The order pustulæ includes those cutaneous diseases that are characterized by the eruption of circumscribed, rounded elevations of the epidermis, which contain pus, and are situated on an inflamed base.

*Acne.*—Acne consists of small pustules, with a hardened base, which are usually distinct, although sometimes they aggregate together, and form clusters. The pus usually appears upon the apex of the acne, while the base is red and pain-

ful. Sometimes acne assumes a chronic and indolent character, and small red pimples or eruptions appear, without forming pus, which, after existing for a time, become absorbed, but only to be followed by another crop. The seat of the disease is usually in the sebaceous glands, and has been denominated by Bennett, *entozoon folliculorum*. Dermatologists have divided acne into *simplex* and *rosacea*. The former is that form of eruption which appears mostly on young persons, about the face; although it may appear on other portions of the body; while the latter is that form of eruptive disease known as *brandy face*, or *rum blots*.

*Causes.*—Simple acne is produced by an obstruction of the sebaceous glands, and is the result of high living, and the want of proper elimination from the body. In females it may occur about the age of puberty, and may be produced by either retained or imperfect menstruation. Acne rosacea, in males, is often produced by the frequent use of intoxicating beverages, although it may be produced by derangement of the urinary organs, stomach, &c. It also occurs in females about the change in life, and is supposed to be caused by the introduction of zymotic poison into the blood.

*Treatment.*—In the treatment of acne, as in other diseases, the causes should be sought for, and, so far as practicable, removed. If produced by a want of proper cleanliness, bathing, &c., baths should be prescribed, out-door exercise, and a low diet. If dependent upon imperfect menstruation, senecin, iron, and gossypin, should be given, in connexion with sitz baths, and a general tonic and invigorating course of treatment should be pursued. When produced by the use of wines, brandy, and other alcoholic stimulants, they should be proscribed. If connected with the change of life, the eliminating organs should be invigorated by baths and friction to the skin, leontodin, neutralizing mixture, and chimaphilin, to disengage the liver, bowels, and lymphatics; and barosmin, and populin, to invigorate the di-

gestive organs, and facilitate elimination through the kidneys. As a local application, I have found aqua ammonia applied to the pustule, when it first appears, then covering it immediately with collodion, almost a specific, frequently causing an absorption of the pustule in a very few hours. In a few bad cases, I have removed the disease by first puncturing the pustule, then applying the muriated tincture of iron. The following ointment has also been used very successfully:—Takesulphate of sanguinarina, one dram; lard, one-half ounce; pulverized camphor, two drams; form an ointment, and apply two or three times a day. Where the blood is loaded with effete matter, and the patient of full habits, benefit will be derived by administering one or two drams of the compound syrup of stillingia every day.

*Impetigo*, (Crusted Tetter.)—*Impetigo* is a cutaneous affection characterized by numerous pustules occurring separately, but which soon become confluent, secreting a lightish-yellow pus, which breaks, and forms a greenish-yellow crust. The pus usually continues to be secreted, and, drying, adds materially to the dimensions of the scab. In time the scab is forced off by the accumulation of pus which forms beneath, but is soon re-produced in the same way as the previous one. The disease frequently spreads by means of fresh crops of pustules, until large portions of the body become involved. Three divisions of *impetigo* have been made, viz., *Figurata*, *Sparsa*, and *Capitis*, (see plate, skin disease, div. 3d, fig. 18.) *Impetigo Figurata* is so named from the pustules appearing in a circular or ovoid shape; while *Impetigo Sparsa*, as its name indicates, appears in distinct pustules; and *Impetigo Capitis* is confined to the scalp, and is the only disease of an eruptive character which usually appears on the head, it being mostly confined to children.

*Causes.*—It is supposed that the disease is produced by a scrofulous tendency of the system; and Mr. Neligan states that it is produced by irritants applied to the skin, especially

to the scalp. It also appears in some cases about the age of puberty, and is supposed to proceed from imperfect menstruation.

*Diagnosis.*—Impetigo is always characterized by the appearance of small, semi-transparent pustules. The only diseases with which it is liable to be confounded, are eczema and ecthyma, from which it may be distinguished by the pustules in impetigo being larger. The scab forms are thicker, and the quantity of pus secreted is much greater, than in eczema or ecthyma; besides, impetigo is the only disease which affects the scalp.

Sycosis has, in a few instances, been confounded with impetigo; but as sycosis is always confined to the face, which is covered with a beard, and is not of a true pustular character, it need not be confounded with impetigo.

*Treatment.*—In the treatment of acute impetigo of strong and robust children, the bowels should be opened by means of small doses of podophyllin and cream of tartar. A hot bath should be given; and if there is fever, small doses of the tincture of veratrum viride given to control it. As a local application, take equal parts of pulverized sanguinaria Canadensis, or blood-root, and nymphaea odorata, one ounce; good cider vinegar, six ounces; mix, and let it tincture twenty-four hours, and apply as a wash with a sponge four or five times a day. In cases where there is a scrofulous or tuberculous tendency, and the disease is of a chronic character, the following compound will be found valuable:—

R. Ferri Hypo-Phosphite.....℥j.  
Juglandin .....grs. x.  
Quinine .....grs. xij.

Mix. Ft. pulv. No. xvj. S.—One taken three or four times a day, in a spoonful of Cod Liver Oil.

Also apply the following ointment:—

R. Glycerine.....℥ij.  
Baptisin .....grs. x.  
Creasote .....gutt. x.

Mix, and apply with a camel's hair brush four or five times a day.



The parts should be thoroughly washed with warm water and soap between each application of the ointment. After the powders have been taken, the following mixture may be given:—

R. The Essential Tincture of Cinchona.....℥j.  
 Essential Tincture of Baptisia Tinctora..℥j.  
 Pyro-Phosphate Ferri.....℥j.  
 Syrupus Simplex.....℥iv.

Mix. Sig.—One teaspoonful every three or four hours during the day.

Where the disease proves obstinate, and especially if confined to the scalp, the head should be shaved; and, in addition to the other treatment, bathe in a solution of sulphate of zinc, of the strength of one dram to four ounces of water. Dr. Bennett recommends in these cases the tar ointment, and in some cases it may be used with benefit. Where the lymphatics are implicated, I have obtained benefit from the chimaphilin given in one or two grain doses, in combination with iron, three or four times a day. The diet and habits of the patient should be well regulated.

*Ecthyma*, (or Papulous Scale.)—Ecthyma is an eruption of phlyzacious pustules on a hardened, inflamed base, commonly found alone, but sometimes in small groups, terminating in scabs of a yellowish-brown colour. It is rarely met with in children, but frequently occurs in adults. The pustules appear chiefly on the extremities, although they may affect any portion of the skin. There are two divisions of ecthyma, viz., Ecthyma Acutum, and Ecthyma Chronicum. The eruption of acute ecthyma is preceded by a slight fever; in about thirty-six hours, small, red spots, are seen to appear on the skin, accompanied by heat and tingling. On the second day the centres of these spots are raised by the pus contained in them, which form the *phlyzacious pustule* of the disease. This stage of the disease is accompanied by much pain. Maturation occurs from the fourth to the sixth

day. The disease terminates usually in about two weeks, although it may continue for five or six weeks.

Chronic ecthyma is a common eruptive disease, occurring more frequently than the acute form, and in weakened constitutions at every age, but more commonly in very young children. The eruption is the same as in the acute form, except that there are no preceding symptoms. The chronic character of the disease is due to the constant succession of the pustules. The appearance of the skin is unhealthy, being covered with large spots and stains. The constitution, especially in old persons, becomes very much weakened. This form of the disease may last five or six months, or even longer, being connected with other affections.

The causes of ecthyma are topical and constitutional. Residing in damp places, wearing insufficient clothing, inattention to cleanliness, all aid in developing the disease.

*Diagnosis.*—Ecthyma is known by the phlyzacious pustules, and their detached manner of development. The small pustules somewhat resemble those of small-pox; but the manner of eruption, and its mode of appearance on different parts of the body are sufficient marks of distinction. The pustules of ecthyma may also be confounded with those of syphilis in the second form, but the latter seldom occurs except in persons of advanced age.

*Prognosis.*—Ecthyma is not a fatal disease, except in its complicated form. The chronic form is of long duration, which injures the general health.

*Treatment.*—In acute ecthyma the stomach should be cleansed by a mild emetic, and the bowels opened by a gentle purge; after which the patient should take a warm bath, and aconite, to control the fever. The inflamed and pustulated surface should be covered with a warm suppurary elm poultice, kept constantly moistened with the tincture of lobelia. After the acute inflammation has subsided, quinine and iron should be given, followed by small doses of juglan-

din and chimaphilin; and, instead of the poultice, the following ointment should be applied:—

R. Oxide of Zinc.....3j.  
 Sulphate of Sanguinarina.....grs. x.  
 Adeps ..... 3j.

Mix. Ft. Unguentum. S.—Let it be applied four or five times a day.

Wash the part thoroughly previously to each application. In the chronic form, the indications of treatment are to enrich the blood, regulate the habits of the patient, and by means of local astringents and stimulants restore the affected surface to its normal condition. This can be accomplished by giving hydrastin, alnuin, rumin, chimaphilin, iron, and quinine. The following is a valuable preparation:

R. Rumin.....3j.  
 Pyro-Phos. Ferri.....3ss.  
 Syrupus Simplex.....3vj.

Mix. Trit. S.—One teaspoonful four or five times a day.

The following ointment is also valuable:

R. Myricin.....grs. x.  
 Baptisin.....grs. xx.  
 Glycerine.....3j.  
 Creasotum .....gutt. x.

Mix. Apply as an ointment.

In case the disease should prove obstinate, the part may be washed once or twice a day in a solution of sulphate of zine, and the patient should be placed upon juglandin and quinine for two or three days. The diet should be nutritious, and the patient should be prescribed out-door exercise and frequent baths.

*Papulæ*, (or Pimples.)—This group of diseases is known by the small eruptions on the skin, called *papulæ*, or pimples. They are in general of a reddish colour, but are sometimes found paler than the surrounding skin, and neither contain pus nor serum, being mostly accompanied

by insufferable itching. These non-contagious eruptions occur in every stage of life, affecting both sexes, but especially males. They vary in size, and may be scattered over the entire surface of the skin, or may be confined to a single portion of the body. The number of papular diseases may be reduced to two, viz., Lichen and Prurigo.

*Lichen*.—Lichen consists of numerous small papulæ, of a reddish hue, or of the colour of the skin, collected in groups, or scattered over the entire surface. It may be divided into three varieties—Lichen Simplex, Lichen Strophulus, and Lichen Agrius. Lichen Simplex is seldom accompanied by any constitutional disturbance at its commencement. The papulæ are small and numerous, of a bright red colour, and scattered in closely set groups over the skin. The eruption is attended with much heat and tingling, which remain until the papulæ have disappeared. Lichen simplex may be either acute or chronic; in the former the disease continues for about a fortnight; in the chronic form it may last for months, or even years. In lichen simplex the size of the papulæ varies according to the portion of the body on which it appears. In the weak and aged the eruption is of a livid colour, frequently accompanied with red stains of the skin.

The papulæ, in lichen simplex, are in patches, instead of being scattered over the surface. In young persons the itching is sometimes severe, while the papulæ are very much increased in size.

Lichen Strophulus, (Gum.) This eruption is confined mostly to very young infants. The papulæ may be white, red, or the colour of the skin. In strophulus intertinctus, or red gum, small, red pimples appear a short time after birth, and mingled with slight erythematous patches. Sometimes the local symptoms are excessive, the papulæ of a bright red colour, appearing in groups. This variety is termed *volaticus*, or *wild-fire rash*; often remaining a considerable length of time.

Lichen agrius sometimes follows lichen simplex; but in most cases its phenomena are seen from the first, in which event smart febrile symptoms are seen to occur two or three days previously, and with such a burning heat as to resemble scarlatina. As the rash appears the fever diminishes, while numerous small and shining papulæ are seen in the skin. The itching is increased by anything which adds to the heat of the skin. In the advanced stage of the disease the papules ulcerate, and discharge a serous fluid, which forms into thin scabs; the skin then becomes thicker and more inflamed, pustules of acne or impetigo are seen, and the skin assumes a livid aspect, discharging freely a serous fluid.

In the mild cases of lichen agrius the eruption disappears about the twelfth day, the irritation grows less, and the disease ends in about a fortnight. It may last for a much longer period, in some cases remaining four or five years. This form of the disease affects particularly special portions of the body. The swelling on the face is much greater than on other parts—the eyes becoming, sometimes, almost entirely closed. The influence of heat in producing lichen agrius may be noticed; thus we see persons affected particularly in the warm season of the year; and in hot climates this occurs so frequently that it is accounted a separate variety, under the name of lichen tropicus, or the prickly-heat of the East Indies.

*Causes.*—Lichen may occur at any period of life, but its different varieties seem to be connected with different ages; thus lichen strophulus, as we have noticed, belongs to infants; lichen agrius occurs generally in old age; while lichen simplex appears to belong to those in middle life. The causes of this disease are often difficult to understand; it is frequently noticed in persons of a nervous disposition. It sometimes appears to be caused by the disorder of the digestive organs; or on the face and hands, by exposure to hot fires, harsh winds, &c.

*Diagnosis.*—Lichen simplex may be easily known by the appearance of the erythema. It is likely to be mistaken for prurigo, the first appearance of the eruption being the same in both; but in prurigo the papulæ are much larger than in lichen. When these begin to disappear, the eruption might be confounded with psoriasis guttata, except that the scales are thinner and smaller. It may be distinguished from scabies and eczema by the free discharge attending them. Lichen circumscriptus may be distinguished from herpes circinnatus and erythema circinnatum by the character of the eruption. The distinguishing features of urticaria and lichen urticatus are the pale centres of the elevations, and the nature of the former to pass quickly away.

Lichen strophulus may be distinguished from prurigo by the white papulæ in the former being paler, while the red forms are of a deeper colour than those in prurigo. They also occur at different ages.

It is sometimes difficult to detect a difference between lichen agrius and chronic eczema; but in the first-named eruption we can readily distinguish the character of the papulæ. In this form, moreover, the serous discharge is less abundant.

Lichen is a very frequent form of syphilitic and mercurial eruption, which I have fully described under that head.

*Prognosis.*—The prognosis of lichen is almost always favourable under the New School treatment; although on old people, and mercurial and syphilitic patients, it sometimes proves an obstinate form of disease.

*Treatment.*—The treatment, in the acute form of lichen, consists in cleansing the stomach and bowels by means of a gentle emetic and a mild purge, after which the following remedies should be given:—Take the saturated tincture of *scrofularia marilandica*, one dram, and add to a tumbler full of water, and let the patient take one teaspoonful every half hour, or hour. If there is fever, twenty or thirty drops of

the essential tincture of *veratrum viride* should be added to another tumbler partly filled with water, and a teaspoonful given in alternation with the above remedy, every half hour or hour, until the fever is controlled. During the treatment the surface should be frequently sponged in tepid water, and the patient remain quiet in bed. If the above treatment should not control the disease in from twenty-four to forty-eight hours, the following should be given:—

R. Macrotin. ....gr. j.  
 Quinine.....grs. x.  
 Hypo-Phosphite Ferri .....grs. xx.

Mix. Ft. pulv. No. xv. Sig.—One every two hours.

As an external application, borate of soda, dissolved in water, of moderate strength, is all that is required in simple lichen. It may be applied as a wash three or four times a day. In the chronic form of the disease, an active, supporting, and invigorating course of treatment is requisite. The following compound will be found valuable:—

R. Chimaphilin .....ʒj.  
 Ampelopsin.....ʒss.  
 Pyro-Phosphate Ferri.....ʒjss.  
 Syrupus Simplex.....ʒvj.

Mix. Sig.—One teaspoonful every two or three hours.

At the same time the patient should take a nourishing diet, frequent out-door exercise, in connexion with daily baths, and the following local application should be made:—

R. Oxide of Zinc.....ʒj.  
 Sulphate of Sanguinarina.....grs. x.  
 Glycerine .....ʒij.  
 White Wax .....ʒss.

Mix, and form an ointment, to be applied to the eruption once or twice a day.

If there should be much itching and a burning sensation experienced, one dram of the essential tincture of aconite, added to two ounces of glycerine, and applied as an ointment, will relieve that symptom. If the disease should



still prove obstinate, ten grains of quinine, and three grains of juglandin, made into six powders, and one given every two or three hours, will, under ordinary circumstances, control the difficulty.

*Prurigo, or Itching.*—Although prurigo frequently occurs without the presence of papulæ, yet it must be arranged with the cutaneous diseases, as in some cases the eruption is distinctly visible, appearing of a larger size than in some other affections of the skin. It consists of two distinct forms—Prurigo Vulgaris, and Prurigo Senilis.

Prurigo vulgaris, although often severe, may in some cases occur in a very mild form. The eruption is sufficient to cause an unpleasant itching on the surface.

The papulæ, in the outbreak of the severe form of this disease, may or may not occur; but they are generally visible in some stage. The pruritus occasions the most intense degree of itching, especially during the night, thus causing the skin to be torn by the almost incessant scratching of the patient.

The milder form generally lasts about three weeks, while the more severe kind may continue a number of months.

Prurigo senilis is confined to persons of advanced age. The papulæ are always present in this form, and are of a larger size than those of prurigo vulgaris. The skin being torn with the nails, small black crusts appear on the points of the eruption. In this form of the disease numerous pediculi are constantly found on the surface of the skin, especially on persons in lower life, and those of unclean habits. The eruption is consecutive, new ones beginning to appear as soon as others are removed.

Prurigo vulgaris may occur on particular portions of the body, taking its name from the parts which it affects.

*Causes.*—This disease may occur at any period of life, although it is most frequent in very old persons. It is especially liable to occur upon the pudenda in females, about

the change of life. In cases where the skin is subject to frequent irritations from trifling causes, this disease is likely to be developed. Dissipated habits, want of cleanliness, unwholesome diet, &c., all act as exciting causes of this affection.

*Diagnosis.*—The extreme papular eruption is the most prominent symptom of prurigo, together with the black crusts which form on the papulæ. It is liable to be mistaken for scabies and lichen, as has been before stated.

*Prognosis.*—When prurigo has been of long standing, it is difficult to combat with, especially in those of advanced life. Although it is not deemed fatal, yet it, in many cases, affects the mind, and renders the remaining days of the patient a burden. Under Eclectic treatment, however, it is usually controlled.

*Treatment.*—In the simple form of acute prurigo, the following application is usually all the treatment required:—

R. Oleo-Resin of Lobelia.....grs. xx.  
 Aconitin.....grs. iij.  
 Sulph. Sanguinarina.....grs. x.  
 Glycerine.....℥ij.

Mix. Triturate until an ointment is formed. Apply this ointment to the part three or four times a day.

In the chronic form of the disease, where the constitution is vitiated, iron, quinine, juglandin, and general tonics, will be required. If occurring on the pudendum, I have found the following application of great value:—Take iodide of potassium, one dram; water, one ounce. Mix, and bathe the parts three or four times a day. If there is much inflammation connected with the disease, a slippery elm poultice may be applied, moistened with the glycerine ointment described above.

*Squamæ.*—Squamous eruptions may be said to consist of dry, hard scales, occurring in groups on the surface of the skin. Scaly diseases chiefly affect the extremities, although

they may occur on any portion of the body. They may be divided into two varieties—Psoriasis, and Pityriasis.

*Psoriasis*, (Dry Tetter, Dry Seale.)—Psoriasis consists in the production of dry, white scales on the surface of the skin, which separate into small layers. The eruption is scattered over the surface, in the form of small, round spots, formed into groups. There are three varieties of psoriasis, viz., Psoriasis Guttata, Psoriasis Aggregata, and Psoriasis Lepræformis.

*Psoriasis Guttata*.—In this mild form of the disease, there is a slight degree of itching, with numerous small papulæ appearing at the commencement of the affection. This form of psoriasis usually lasts from six weeks to two months. Sometimes the eruption appears in narrow strips, which are nothing more than the papulæ crowded together in a small space.

*Psoriasis Aggregata*.—This form, like the previous one, is usually developed without much constitutional disturbance. The eruption consists of slight elevations of the cuticle closely aggregated together, which soon become covered with a dry, briny scale, and desiccate and desquamate every day, and sometimes oftener.

*Psoriasis Lepræformis*, (*Lepra*.) (See div. 2, fig. 20, plate on skin diseases.) This form of psoriasis usually commences without constitutional symptoms, by the appearance of small, red stains, upon which appears a silvery white scale. In some instances these patches coalesce and form an extensive eruption; or they may remain distinct, appearing on all portions of the body. The lepra form of psoriasis is usually chronic, with but little disposition to a spontaneous termination. The scales appear and disappear in this form as in psoriasis, with the exception of lepra nigricans, in which the scales are black, instead of a light colour, with a tendency to accumulate, forming quite an elevation on the skin.

*Causes*.—Psoriasis occurs at all ages, and in both sexes.

It is said to depend frequently upon hereditary predisposition. It is also said to be caused by irritants applied to the surface, but is more probably the result of the inactivity of cutaneous exhalation, and the accumulation of detritus in the blood.

*Diagnosis.*—Various forms of psoriasis may be distinguished from all other eruptive affections, with the exception of pityriasis, by the presence of squamæ or scales. From pityriasis, by the surface being elevated, which is not the case in the former.

*Prognosis.*—Under the New School treatment, the prognosis is usually favourable.

*Treatment.*—As this disease unquestionably depends upon the imperfect action of one or more of the emunctories of the body, the physiological condition of these organs should be carefully studied. If the skin be inactive, baths, friction, out-door exercise, with a free use of fresh vegetable diet, and two or three grains of chinaphilin, administered two or three times a day, will be sufficient to remedy the difficulty. If the disorder be dependent upon a diseased condition of the kidneys, apocynin, barosmin, and helonin, are the remedies. To act specifically upon the affection, quinine and juglandin should be given. As an external application, the acetic tincture of sanguinaria Canadensis, applied five or six times a day, will be found most beneficial. In some cases, I have derived benefit by applying the wash during the day, and covering the part with glycerine at night. During the treatment the bowels should be kept regular, by means of anti-bilious physic and neutralizing mixture, and the parts kept free from irritating substances. The above treatment, if persevered in, has been found ample for the cure of a very large number of all forms of psoriasis that have occurred in my practice.

*Pityriasis.*—Pityriasis has been divided into Pityriasis Diffusa, and Pityriasis Localis. (See div. 2, skin diseases, fig.

21.) Pityriasis diffusa is characterized by patches of yellowish, or reddish-yellow colour, covered with fine, branny scales, and is accompanied by smarting, itching, and burning. Pityriasis localis does not differ from the other form, the term only alluding to its peculiar location. It may appear on the face, neck, scalp, and other portions of the body.

*Causes.*—The causes of this form of squamæ are unquestionably similar to those of psoriasis.

*Diagnosis.*—The only disease with which it is liable to be confounded is that of psoriasis, from which it may be distinguished by the scales being much smaller, finer, and the surface less elevated than in psoriasis.

*Treatment.*—The treatment, so far as the constitutional symptoms are concerned, differs but little from that which I have already described under the head of psoriasis. As a local remedy, I have found almost immediate relief by applying a warm solution of the sesqui-carbonate of potassa, say, take of the potassa, one-half ounce; boiling water, half a pint. Let cloths be wrung from this hot solution, and applied to the part as warm as the patient can bear; have them changed every half hour or so, during the day. At night cover the part with the following mixture:—Take glycerine, two ounces; hydrastin, ten grains; mix, and use as an ointment. If the case should prove obstinate, and especially if it should be confined to the scalp, the acetic tincture of sanguinaria should be used, as described under the head of psoriasis.

*Hypertrophix.*—Under this head I purpose describing all those diseases of the skin connected with its thickening and enlargement.

*Icthyosis.*—(Div. 2, fig. 22, skin diseases.) Icthyosis, or fish skin disease, is characterized by thick, dry, horny scales appearing on portions of the body. If the disease continue, it may extend over all portions of the body. The entire integument is usually involved, and the skin has a hard

and thickened appearance. These scales generally dry and fall off, but they are soon supplied by the formation of new ones.

*Causes.*—But very little is known as to the cause. In many instances it is congenital, while in other cases it appears to depend upon a general derangement of the skin and vitiated state of the fluids.

*Treatment.*—A variety of plans of treatment have been introduced, but in most instances with but little success. Dr. Banks reports two cases that he cured by the free use of cod liver oil, internally and externally. This fact would go to show that the disease may be dependent on disordered nutrition; and in the numerous cases that have been successfully treated by the New School practitioners, I notice that the cures have principally depended upon the correction of the nutritive functions. Cod liver oil, albuin, chimaphilin, quinine, and iron, being the remedies mostly administered internally; while hydrastin and sanguinarina, triturated in cod liver oil, have been most successfully used as an external application.

*Molluscum.*—Molluscum is characterized by the development on the skin of round, slightly umbilicated, soft tumours, varying in size usually from that of the head of a pea to that of a nut, but described as occasionally acquiring the magnitude of a pigeon's egg; they are of a yellow, or pinkish-white colour, sessile, rarely pedunculated, scattered irregularly over the surface, yet occurring not unfrequently in small groups, of slow growth, and untended with either local pain or constitutional irritation. When pressed between the fingers, a small quantity of thick, whitish fluid exudes from the minute aperture that forms the umbilical apex of each tumour. They are most frequently found on the face and neck. Their duration is uncertain, in some cases ulcerating and falling off spon-

taneously; in other cases lasting for life, without increasing or diminishing.

*Causes.*—But little is known in regard to the cause of molluscum.

*Treatment.*—The treatment that has been most successful in this disease consists in clipping off the tumours with a pair of scissors, and cauterizing the part with a little caustic potassæ; after which a slippery elm poultice should be applied. The constitutional treatment should be of a tonic and invigorating character.

*Starrhœa.*—Starrhœa is a disease of the sebaceous follicles, characterized by hypertrophy of the glands, and an abnormal discharge of their contents. This disease, although classed among the skin affections, hardly amounts to a disordered state of the skin, with the exception of a few cases. When it occurs as a disease, it mostly exists in the axillary and inguinal region, in which the parts are covered with a moist, oily perspiration. In some cases the discharge becomes so copious as to be termed a disease, there being inflammation, and in some cases a separation of the glands.

*Treatment.*—But little internal treatment is required. The bowels should be kept open by means of a mild laxative, and the parts should be bathed with a decoction of equal parts of rumex crispus and hydrastis Canadensis.

*Elephantiasis.*—There are two varieties of this disease—Elephantiasis Græcorum, and Elephantiasis Arabum. The former is characterized by the development of tumours upon the integument, varying in size from a pea to that of an apple. Eventually these tumours ulcerate, and discharge an ichorous pus, in some cases affecting the bone and resulting in mortification and death. It is a disease principally of tropical climates, and is supposed to be the true leprosy of the ancients. Elephantiasis arabum is characterized by an extensive hypertrophy of the integu-



ment, most usually affecting the lower extremities, the serotum of males, and the pudendum of females. The affection usually commences with more or less local inflammation, and a general derangement of the constitution; the parts affected often assuming an enormous magnitude, and when fully developed, has a rough, lightish-brown colour, full of deep furrows, which ulcerate, and discharge an ichorous pus.

*Treatment.*—As this disease is produced by a vitiated state of the fluids and imperfect action of the integument, tonics and alteratives should be freely administered, such as the compound syrup of stillingia, in combination with iron, &c. The parts should be thoroughly bathed three or four times a day with a strong solution of sesqui-carbonate of potassæ, followed by slippery elm poultices. In cases where the swelling and thickening of the integument have become very extensive, painting the part with the muriated tincture of iron, followed by an astringent poultice, has been found very beneficial.

*Clavus, (or Corns.)*—Corns consist in excrescences, almost always confined to the feet. They are usually produced by wearing tight shoes, boots, &c.

*Treatment.*—Shave the part as closely as possible, without hurting; then touch it with a small quantity of chromic acid. Avoid pressure until the parts are sound. The above treatment, if properly applied, is all that is necessary.

*Condylomata.*—Condylomata consist of small, fleshy tumours, which usually appear at the junction of the mucous membrane with the skin. They are easily removed by applying caustic of potassæ.

*Nævus, (or Mother's Mark.)*—Mother's mark is characterized by discolouration, and more or less elevation of different parts of the body, easily engorged, and composed of loose, cellular structure. It usually exists at birth, and seldom changes during life.

*Treatment.*—If but a small portion of the integument is affected, and so located as to disfigure the patient, it should be removed; otherwise it should not be interfered with. The best method for removing it consists in inserting through it a large number of small steel needles, and so encircling the needles with the ligature as to interrupt the circulation; allow these to remain until the parts slough off. The sore will heal by granulation, and usually present a healthy appearance.

*Maculæ.*—Maculæ consist of a variety of discolourations of the skin, caused by the accumulation of the pigment cells of the derma on various portions of the body. It frequently appears upon the face of pregnant women, and upon those affected with uterine disease. It may exist also as the effect of deranged secretions, and an impure state of the blood.

*Treatment.*—When it occurs in pregnant women, it usually disappears after child-birth; and if dependent upon uterine derangements, by removing the cause the difficulty will disappear. So in the treatment of the disease, dependent upon other causes. The cause should be sought, and so far as practicable removed. Bathing the part in the acetic syrup of sanguinaria, also, has a tendency to remove the discolourations.

*Vitiligo.*—Vitiligo is consequent upon the want of the colouring matter of the skin, sometimes occurring in the hair, eyes, &c., when it is called albinismus. True vitiligo occurs on some particular portion of the body, at one time, in small, round spots, which afterwards increase in size. The surface of the skin, which is thus affected, is not elevated, and is of a perfectly white colour. The cause of this disease has not been ascertained; it occurs generally in middle-aged persons. It occasions a great amount of

mental distress, especially when it occurs in young persons; yet it may, by untiring care, be removed.

*Treatment.*—The indications of treatment are to enrich the blood with tonics, iron, cod liver oil, nutritious diet, out-door exercise, and bathing.

*Ephelis.*—This affection, which is an increased hue of the pigment of the skin, is divided into three varieties, viz., Ephelis Lenticularis, Ephelis Hepatica, and Ephelis Violacea. Ephelis lenticularis, or freckles, is caused particularly by the influence of the sun's rays upon the parts, and occurs most usually in females, owing to their fine skin.

*Treatment.*—These discolourations can usually be removed by an abstinence from animal food, the free use of fresh, succulent, vegetable matter, and bathing the part in a solution of lactic acid three or four times a day.

Ephelis hepatica appears mostly in patches of a dark-yellowish hue; they at first occasion an itching, which increases on rubbing the part. It may last for many months, but generally disappears in a short time. It is seen most frequently in females, especially during pregnancy.

*Treatment.*—The same as in maculæ.

Ephelis violacea is caused by the long use of the nitrate of silver, which changes the colour of the cutaneous surface to a grayish or leaden hue, and is considered a permanent disease.

*Lupus, (or Eating Tetter.)*—Lupus occurs in a variety of forms, generally upon the face. It is an inflammatory affection, with more or less hypertrophy. It commences by slight thickening and elevation of the skin, usually not larger than a kernel of wheat, or a half pea. A thin, hard, brownish scab appears on its surface. The scab, if removed, shows a thickened, indolent, and elevated portion of the integument. The disease extends slowly, but gradually, until, in many cases, it produces extensive destruction of

the integument, which is followed, in some instances, by prostration, general constitutional derangement, and death. Lupus has been divided into Lupus Superficialis, and Lupus Devorans, or *noli me tangere*. The *noli me tangere* is the most active form of lupus, and is usually recognised as that form of cancer which appears about the face, neck, &c. It is most destructive in its character, destroying all the soft parts, and even the bones, in its progress.

*Treatment.*—Lupus, in all its forms, should be destroyed by the application of the caustic of potassæ; and healed under the application of the mild zinc ointment. At the same time, the compound syrup of stillingia, iodide of ammonia, and chimaphilin, should be freely administered internally, for the purpose of purifying the fluids.

*Porriago*, (Scald Head.)—Scald head differs from all other forms of eruptive diseases, in the fact that it appears on the scalp in the form of small, elevated, dry spots, about the size of a pin's head. These little crusts are usually perforated by the hair. The eruption gradually spreads, until, in some instances, the entire scalp is involved in the difficulty. It is usually confined to children, although it may exist in adult persons.

*Causes.*—Porriago is a contagious affection, and is propagated by contact. It is supposed that the nature of this contagion is that of a vegetable parasite.

*Treatment.*—The treatment of this disease consists in shaving the hair, and washing the scalp three or four times a day in a moderately strong solution of sulphate of zinc, and applying the following ointment:—

R. Oxide of Zinc .....	3i.
Podophyllin .....	grs. iij.
Adeps .....	3ij.

Mix; form an ointment. Let it be applied to the affected part after each washing.

At the same time the child's food should be nourishing;

and if there are any constitutional symptoms, they should be removed by the proper remedies.

*Sycosis*.—Sycosis is an affection which is confined to the face, especially to that portion covered with beard. It is an eruptive affection, which is supposed to depend upon the presence of a vegetable parasite, similar to that of porrigo. It is a contagious disease, and is confined, of course, to the male sex.

*Treatment*.—To cure this disease the beard should be removed, and a similar course of treatment pursued as that recommended under the head of porrigo.

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## GLANDERS.

Glanders is a malignant disease, contracted by man from glandered horses. It is produced by inoculation, or by a small portion of the virus, coming in contact with the mouth, nose, &c. It is ushered in by hot, dry skin, rigours, and chills. Connected with these febrile symptoms, is pain in the joints, limbs, and other portions of the body, which soon become swollen, red, and present the character of erysipelas. In the course of two or three days the face, neck, chest, and sometimes other parts, are covered with phlyzacious pustules. They usually appear in successive crops; and in some cases, instead of going through the ordinary course of pustular eruptions of this character, they degenerate into indolent ulcers. At other times there are small blebs appearing upon the part filled with a dark, ichorous fluid, which soon ruptures, and leaves a gangrenous ulcer. In the course of a week or ten days, sometimes longer, the nostrils commence to discharge a greenish, corroding pus, mixed with blood. Soon after the commencement of this discharge, the mucous membrane becomes engorged and inflamed, which frequently terminates in permanent gangrene. This disorganization may

extend to the fauces, and produce almost immediate death, or it may be confined to small patches, and assume a chronic character.

#### TREATMENT.

In the treatment of glanders, the patient should have a thorough lobelia emetic, followed by an active purge of antibilious physic; after which the following compound should be given:—

R. Baptisin.....grs. x.  
 Quinine .....grs. x.  
 Prussiate of Iron .....grs. xx.

Mix. Ft. pulv. No. x. Sig.—One every two hours.

If there are pain and swelling in the joints, cloths wrung in hot soda water should be applied, and frequently changed; or if the pain be violent, previously to applying the hot packs, a thorough spirit sweat should be given. If blebs or gangrenous ulcers appear, they should immediately be cauterized with caustic potassæ, and slippery elm poultices applied, kept constantly wet with the compound tincture of myrrh and capsicum. If the ulcers appear in the nose and throat, the nose should be syringed, and the throat gargled with a strong infusion of bayberry and hydrastis. If the disease assume a chronic character, a similar treatment should be instituted, but alternated with comp. syrup of stillicia, iron, a general tonic, and an invigorating course of treatment.

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#### DENGUE.

Dengue is a disease of a febrile character, connected with rheumatic symptoms and a peculiar eruption. It usually commences with a chill, fever, headache, loss of appetite, and other symptoms peculiar to bilious fever, with the addition of violent rheumatic pains in the joints, and other parts of the body. This fever usually lasts from one to two days, when a gradual remission occurs, and the pa-

tient feels quite comfortable, although there are frequently more or less rheumatic pain and soreness of the muscles. In the course of from two to four days, the fever generally returns, and passes through paroxysms similar to the first. Upon the subsidence of this paroxysm, or about the sixth day, an eruption makes its appearance somewhat resembling that of scarlatina, and is immediately followed by a cessation of all the constitutional symptoms. The eruption usually amounts to nothing more than a fine rash, which becomes covered with small scales, and disappears in the course of one or two days.

## CAUSE.

The probable cause of this disease is that of a concentrated miasmatic poison, acting in concert with a peculiar epidemic influence.

## TREATMENT.

The warm bath should be ordered, the stomach and bowels cleansed by means of a mild emetic and purge, followed by the following prescription:—

R. Quinine ..... grs. x.  
 Veratrin..... gr. ss.  
 Sacch. Alba ..... grs. xx.

Trit., mix, ft. pulv. No. x. Sig.—One every two hours.

If this should not control the fever, small doses of aconite should be given for that purpose, and in a few days the prescription repeated. In cases where the disease is followed by debility, alumin, hydrastin, and iron, should be given.

## OZÆNA, (CATARRH OF THE HEAD.)

Ozæna is a chronic inflammation of the mucous membrane of the nostrils. It is characterized by a feeling of uneasiness, heat, and inability to respire through one or



both of the nasal passages. This disease may be either acute or chronic. In the acute form, it is usually accompanied by an abundance of secretion, and a continuance of the disagreeable symptoms for two or three days, when it gradually disappears. In the chronic form, there is generally a secretion of muco-purulent matter, of a very offensive character. If it is confined to the anterior portion of the nostrils, it will be discharged externally. If to the lateral passage, it will pass into the larynx, and produce irritation, which not unfrequently extends to the trachea and bronchia. In other cases this purulent secretion will dry upon the mucous membrane, and form large, thick crusts, which will be discharged after having accumulated for several days or weeks.

#### TREATMENT.

In the acute form of the disease, but little more is necessary than to keep in a warm room, and inject the nostrils occasionally with warm water. Chronic ozæna, however, is a disease that is very seldom successfully treated by the Old School. The following plan, which I have adopted within the last few years, has proved universally successful in quite a large number of cases:—Take pulverized muriate of ammonia, one dram, and place in an iron spoon; hold it upon a lamp, or gas, and heat it until the ammonia is converted into a smoke or vapour. Inhale this smoke through the nostrils; continue the process until the ammonia is all consumed. Let this process be repeated two or three times a day, until the disease is removed. At the same time, give the following mixture:—Take compound syrup of stillingia, three ounces; neutralizing mixture, three ounces; carbonate of iron, one dram; mix, and let the patient take from one to three teaspoonfuls a day. The constitutional symptoms should be attended to, and treated by such other appropriate remedies as are indicated.

## GOUT.

This disease affects various parts of the body, causing much inflammation and irritation. It was formerly known by the name arthritis. It is most properly divided into three varieties—Acute, Chronic, and Nervous Gout. Added to these is a form of the disease, which, showing symptoms of rheumatism, is known as Rheumatic Gout, and may be considered as a distinct variety.

## ACUTE GOUT.

This form generally affects persons in middle life, and of vigorous habits. The principal seat of this form of the disease is the great toe. It is often very severe, the part affected having the sensation of being torn by an instrument, or pierced. The joint soon commences to swell, becoming so intensely sensitive that the slightest motion occasions the most extreme pain. The pain, after remaining from six to twenty-four hours, diminishes, while the swelling augments. The febrile symptoms commence at about the same time with the other affections; also continuing for a similar period, and both leaving before the appearance of the swelling. At this time the patient is frequently troubled with looseness of the bowels, or a free discharge of the urine. Gout may occur, however, in other forms. The patient may be affected with slight preliminary attacks, before the disease fairly sets in. The symptoms are almost identical with those of *nervous gout*, and will be described under that head. It is seldom that the patient is released with one attack of acute gout. It generally re-appears in about one year, although the interval may be prolonged to a much longer time. These intervening periods shorten, while the length of the attacks increase. During these attacks the patient may be affected with inflammation in the bowels, stomach, brain, heart, &c., when the disease is said to have passed from the acute to the

chronic form. When this form passes from the outward surface to the anterior organs, without any visible signs of its Existence, it is termed *misplaced gout*. It may be caused by the application of cold to the affected part.

Gout may appear in two forms in the stomach; the inflammatory, and the nervous. The symptoms of the former are similar to those of acute gastritis. In the nervous, or functional form, the burning pain of the former is absent, while there are either nausea and vomiting, or a severe convulsion, depending upon the seat of the irritation.

When the bowels are the parts affected, it occasions colic, or diarrhoea. Although the heart is seldom the seat of acute gout, sharp pains, an oppressive feeling, and swooning may occur. Should the lungs be affected, there will be a feeble pulse, difficult respiration, and bronchial congestion. In affections of the diaphragm, the symptoms are the same as those of rheumatism of this part. The liver is affected when there is a superabundance of bile, causing bilious vomiting, &c.

The kidneys are more generally acted upon than the other internal organs. There being an abundance of uric acid in the urine, symptoms of gravel appear. In some instances the disease settles upon the urethra and mucous membrane of the bladder, producing symptoms analogous to gonorrhoea. At other times the disease attacks the brain, producing apoplexy.

#### CHRONIC GOUT.

Chronic gout is but a continuation of the acute, of long standing; or it may be denominated chronic when the gouty symptoms appear, unaccompanied with fever. In this form, as well as in the acute, the disease may fix upon a certain joint; or it may be migratory, changing from joint to joint. In the majority of cases, however, it locates upon a single joint, and produces permanent enlargement, which consists in extensive chalky concretions.

## NERVOUS GOUT.

Nervous gout, although in some instances distinct from that affecting other parts of the body, is usually connected with it. When it is of a purely nervous character, it is manifested in the form of neuralgic pain in different parts of the body. It is usually accompanied by a marked disturbance of the circulation, and of the secreting organs. Another form of gout that has been described by many authors, is rheumatic gout. This form usually manifests itself by symptoms analogous to those of acute rheumatism.

## CAUSES.

It is supposed that gout is more frequently than other diseases, of an hereditary character. It may also be produced by high living, excessive use of alcoholic stimulants, and a want of sufficient exercise.

## DIAGNOSIS.

The only disease with which gout is likely to be confounded is acute rheumatism, from which it may be distinguished by the more extensive disorder of the digestive organs, and its existence in patients of indolent and plethoric habits.

## TREATMENT.

The primary object in the treatment of this disease, is the regulation of the patient's habits. His diet should be of a simple character, and composed largely of vegetable matter. Out-door exercise, and daily baths, should also be enjoined where the circumstances will permit it. The constitutional treatment should consist of a free lobelia emetic as often as once or twice a week, succeeded by the following compound:—

R. Apocynin.....grs. xx.  
 Quinine .....grs. xv.  
 Chimaphilin .....grs. xx.  
 Sacch. Alba. . . . . ʒj.

Mix. Ft. pulv. No. xxv. Sig.—One every three or four hours.

If there is much pain, let the patient take the one-sixteenth portion of a grain of aconitin, and the one-eighth of a grain of hyoseyamin once or twice a day. At the same time let the following liniment be applied:—

R. Chloroform..... $\overline{3}$ ij.

Tincture of Aconite..... $\overline{3}$ ij.

Mix, and apply to the part by means of a small brush.

If there are febrile symptoms, let the patient take small doses of the tincture of veratrum viride as often as it is necessary to control it. If the gout assumes a chronic character, let from one-half pint to a pint of the strong infusion of queen of the meadow and pipsissewa be drunk during the day. If there are nervous symptoms, a pill composed of one or two grains of lupulin and cannabis sativa, taken three or four times a day, will usually relieve it; and if there is enlargement of the joints, a liniment composed of equal parts of the compound tincture of myrrh, capsicum, lobelia, and oil of hemlock, rubbed on three or four times a day, will be found beneficial. Where the gout partakes of the nature of rheumatism, either the sulphate or chlorate of potassa should be freely administered, in combination with eupatorin purpurin, barosmin, and other diuretics. If the disease is of a periodical character, and especially if it returns at stated intervals, the attacks should be anticipated by the free use of quinine and podophyllin. During the treatment the entire body should be sponged in a hot alkaline bath as often as once or twice a week.

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## R H E U M A T I S M .

In addition to what I have written on rheumatism in another part of this work, I purpose to offer a few observations relative to the nature and character of this disease, inasmuch as it is an affection of common occurrence, and resists the ordinary course of treatment.

## SYMPTOMS.

Acute rheumatism is generally ushered in by a quick, bounding pulse, a hot, dry skin, foul tongue, loaded urine, and more or less severe pain in different portions of the body. In many cases these symptoms are preceded by rigours and chills, followed by a fever, which in a short time subsides, and a sour perspiration takes its place. In the course of a few days the pain fixes upon one or more of the joints, which become red, full, and painful. Unlike ordinary inflammation, the pain frequently changes from one joint to another. The inflammation of the joint is not always, although sometimes, accompanied by exudation and infiltration of liquor sanguinis into the cellular tissue. In many cases, when the disease is transferred to a distant portion of the body, all traces of inflammation in the previous site disappear in a very few hours. This, however, does not occur as a general thing, when the inflammation is accompanied by an exudation into the tissue. In some cases the disease appears to be confined to the synovial membrane, and an exudation occurs within the sac, producing *hydrops articulæ*. The disease may run its course without involving any of the vital organs, or it may locate upon the pleura, peritoneum, pericardium, and other portions of the serous tissue. In this event the symptoms will become more complicated, and the disease of a more dangerous character. This acute form of rheumatism, when not involving the vital organs, under favourable treatment, terminates by critical evacuations, such as copious acid perspiration, diarrhoea, or large deposits of urates in the urine. In other cases this disease terminates in chronic rheumatism, which consists in permanent enlargements of one or more of the large joints, accompanied by much swelling, pain, and a general thickening and consolidation of the articulating tissues, together with all the es-

essential characteristics of gout, as I have already previously described.

#### C A U S E S .

It is a prevailing opinion that rheumatism is, in some way, the effect of cold, exposures, dampness, &c., and that these exposures and influences result in an inflammation of the serous tissues, especially those of the joints. That the inflammation connected with rheumatism is of a very different character from ordinary inflammation, requires but little observation to confirm. Who ever heard of an ordinary inflammation changing its locality almost instantly? And yet this is a most ordinary occurrence, during the progress of inflammatory rheumatism. Nothing is more common than for a rheumatic inflammation to leave one joint, or section of serous tissue, and appear upon another, within the space of three or four hours, and that, too, without leaving any traces of the disorder in the tissues where it was previously located. Besides, rheumatic inflammation seldom, if ever, pursues the same course as that which characterizes the ordinary inflammatory process. Ordinary inflammation, it will be remembered, is always accompanied with exudation, and a variety of consecutive changes in the exudation, such as the formation of pus, abnormal tissues, or the death of the exudation. All these are most essentially different from those changes which occur in rheumatic inflammation. Again, it is not those who are most exposed to cold, fatigue, and dampness, who are the most frequent subjects of rheumatism. In the Western country, during its early settlement, I had ample opportunity to observe the effects of colds and every variety of exposure, especially those which are supposed to be most prolific in producing rheumatism; yet, not only did these causes fail to produce the disease, but, when rheumatism occurred, which was seldom, it was far more amenable to treatment than when it occurs among those who enjoy all



the luxuries and comforts of life. Indeed, it is among this latter class that we find rheumatism most prevalent and most violent. Hence, in consideration of all the facts connected with this disease, I must infer that rheumatism is produced by other causes than those which ordinarily contribute to inflammation, and that it must depend upon some specific poison, or *materies morbi* existing in the blood. Of the characters of this poison, Drs. Todd and Prout state that in the blood of rheumatic patients a superabundance of lactic acid is found. Dr. C. J. B. Williams, in his Principles of Medicine, remarks that rheumatism is probably produced by a specific poison in the blood, and suggests that this may be lactic acid. That this substance should contribute to this disease, when existing in the blood in large quantities, is no more unreasonable than that other foreign acids and substances, when circulating in the blood, should contribute to special inflammations.

#### T R E A T M E N T .

Basing my treatment upon the hypothesis that lactic acid is the principal cause of rheumatism, my first efforts are to cut off this supply to the blood. Lactic acid, it must be remembered, is generated to the amount of twelve or thirteen pints in the stomach during twenty-four hours. But during healthy digestion it is neutralized by the ingester. If the digestion becomes disordered, instead of this acid becoming neutralized, it may be taken up by the absorbents, and thus the blood becomes loaded with this agent. To prevent this, our first purpose should be to correct the digestive organs; for which purpose a free lobelia emetic should be given, followed by frequent doses of chlorate of potassa, in combination with diuretics. It must be remembered that lactic acid is transformed into uric and lithic acid during its passage through the kidneys. Hence the value of diuretics. In addition to this, one or two hot alka-

line baths should be given every day; and where there is local inflammation, the parts should be kept constantly packed in cloths wrung from a strong solution of potassæ. The above, in addition to the treatment I have previously given in another portion of the work, has proved most effectual in the speedy cure of this disease.

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## GLOSSITIS, OR INFLAMMATION OF THE TONGUE.

This is a disease which often makes its appearance suddenly, characterized by some or all portions of the tongue becoming red, painful, and swollen. In some instances, in the course of a few hours, the inflammation extends through the entire organ, and it enlarges so as to fill the whole mouth, and the patient is unable to articulate a single word. The system usually sympathizes, and the pulse becomes quick and strong, the skin hot and dry, and other symptoms of general inflammatory excitement occur. The inflammation may terminate in resolution, in suppuration, or in mortification and gangrene.

### CAUSES.

Glossitis may result from the usual causes of inflammation, although it is more frequently produced by injuries, by the introduction of too hot drinks in the mouth, or by mineral poisons, especially the mercurials.

### TREATMENT.

Where glossitis originates in the ordinary causes of inflammation, the stomach should be evacuated by means of a free emetic, the bowels opened by means of anti-bilious physic and podophyllin, and the patient placed upon full doses of *veratrum viride*. After the action of the physic the skin should be bathed in hot lye water, and the mouth frequently gargled with warm water. If the disease is pro-

duced by sealds or injuries, in addition to the above treatment the patient should hold glyeerine in his mouth. If produced by mereury, after the bowels have been opened by the purge, and the fever controlled by veratrum, the following powders should be given:—

R. Sulphur.....ʒj.  
 Quinine .....grs. x.  
 Baptisin .....grs. x.

Mix. Ft. pulv. No. xv. Sig.—One every two hours.

At the same time the mouth should be frequently washed with equal parts of lime-water and sweet oil. If there are symptoms of gangrene, a gargle of cinchona and baptisin should be used. If an abscess form on the tongue, it should be opened by a bistoury.

## ANGINA, OR INFLAMMATION OF THE FAUCES.

Under the name of Fauces are included the Velum Pendulum, the half arch of the Uvula, the Tonsils, and upper portion of the Pharynx. Common inflammation of the fauces, or sore throat, is indicated by a bright red colour, more or less œdema, and in the advanced stage, the appearance of whitish patches upon different portions of the mucous membrane. The patient has a sense of heat and dryness in the throat, which becomes painful upon swallowing, and in conversation. After the disease exists for a short time, an exudation of liquor sanguinis occurs, which is expectorated in the form of tough, viscid matter. In many cases this disease runs its course without much constitutional disturbance; whilst in others there is a hot, dry skin, irritable pulse, and general febrile action. This disease may terminate in resolution, or in chronic angina.

Dr. R. B. Todd, of London, describes a variety of angina, which he considers erysipelatous.

The inflammation, in ordinary cases, runs on for several days, and then gradually declines, terminating almost always in resolution. In some rare cases, suppuration takes place in the substance of the uvula, or soft palate, and gangrene may occur in persons of debilitated and unhealthy constitutions. The tonsils sometimes inflame, and the external parts participate in the disease; the jaws becoming stiff and painful, and the absorbent glands swelling. The most unpleasant ordinary result, however, is the travelling of the inflammation downward into the larynx, and even into the lungs; and, in some persons, severe bronchitis is very apt to follow an attack of simple angina, if not early arrested. Not unfrequently the Eustachian tube participates in the inflammation, and partial deafness results from its closure. This may be ascertained by causing the patient to close firmly the mouth and nostrils, and then endeavour to expire forcibly; or, as suggested by Mr. Toynbee, simply to perform the act of deglutition. If the tube is open, the air will readily enter the tympanum, otherwise not at all, or with difficulty. Another method, suggested by Prof. Richter, is to auscult over the ear, with the cartilaginous portion pressed down, so as to cover the external meatus. If the tube is open, the sound of the breath and voice is heard; otherwise not.

#### CHRONIC ANGINA.

Inflammation of the fauces sometimes assumes a chronic form; in which event the fauces remains permanently congested, thickened, and, in places, small ulcers make their appearance. In some cases this chronic inflammation is accompanied by a copious exudation; while in other cases the fauces remains red, swollen, and dry. This form of in-

flammation is frequently of long standing, and is liable to extend to the trachea and bronchia, resulting in bronchitis.

#### CAUSES.

The causes of both acute and chronic angina are, a vitiated condition of the stomach, colds, serofulous and tuberculous constitutions, spermatorrhœa, and other causes which tend to debilitate and exhaust the system.

#### TREATMENT.

The treatment of acute angina consists in removing the cause, cleansing the stomach, frequent baths, hot packs to the throat, and frequent gargling with hot water. Chronic angina should be treated by first cleansing the stomach and bowels, then invigorating the system with quinine, iron, hydrastin, cod liver oil, and chimaphilin, and gargling the throat frequently with a hot decoction of *hydrastis Canadensis* and *rumex crispus*. If the disease should prove obstinate, the throat should be packed once or twice a week, for ten or twelve hours, with hot water. In the gangrenous form of the disease, the treatment should be analogous to that recommended under the head of diphtheritis.

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### INFLAMMATION OF THE PHARYNX.

Inflammation of the pharynx is a disease of much less frequency than angina. When it occurs, it is characterized by tenderness upon pressure on the outside, the absence of the alteration of voice, and frequently from enlargement, and the accumulation of pus in the cellular tissue.

#### TREATMENT.

When accompanied with the accumulation of pus, it should be treated the same as angina; but when abscesses form, they should be opened with a sharp-pointed bistoury,

and touched, by means of a probang, with a hot solution of sulphate of zinc.

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## STRICTURE OF THE ŒSOPHAGUS.

Stricture of the œsophagus may occur as the result of chronic inflammation, producing hypertrophy of the mucous membrane; or it may be produced by granulation, or cancerous infiltration.

### SYMPTOMS.

The symptoms of stricture of the œsophagus are a difficulty in swallowing, a hot and burning sensation as the food passes over the constricted point, and in case of cancer of the œsophagus, weakness, and general constitutional debility.

### TREATMENT.

Ordinary stricture of the œsophagus, produced by inflammation, may be successfully treated by giving the patient principally a fluid diet, and the free use of menisperm and muriate of ammonia,—say, take menisperm, twenty grains; muriate of ammonia, ten grains; white sugar, one dram; mix, and make twenty powders; dose, one every three hours. If the disease should prove obstinate, a probang, moistened in a tolerably strong solution of nitrate of silver, may be applied once or twice a week. In very obstinate cases, a bougie of sufficient size to put the parts thoroughly upon a stretch, should be introduced every two or three days. In case of cancerous affection producing the obstruction, it may be mitigated by the free use of compound syrup of stillingia and iodide of potassæ, and the application of a solution of sulphate of zinc, by means of a probang, once a day.

### SPASMODIC STRICTURE OF THE ŒSOPHAGUS.

Spasmodic stricture of the œsophagus may occur as the result of nervous irritability, or of chronic inflammation.

## SYMPTOMS.

The symptoms of spasmodic stricture of the œsophagus are the same as those of permanent stricture, with the exception that it occurs in paroxysms.

## TREATMENT.

It may be temporarily relieved by the administration of an ounce of lobelia, and permanently cured by removing the nervous irritability or inflammation upon which it depends.

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## CHOLERA INFANTUM.

Cholera Infantum is a complaint which usually attacks children between the ages of two months and three years. It is a disease peculiar to the warm season, commencing in the first heat of the summer, and usually terminating with the cold weather of autumn; is confined mostly to cities, and prevails most extensively in its most populous portions.

## SYMPTOMS.

The attack is usually preceded with a diarrhœa, which lasts from a few days to several weeks. During its progress the stomach becomes irritable, and active vomiting and purging occur. In the more violent form of the disease, the vomiting and purging occur without any premonitory symptoms, and, in some cases, are so active as to destroy the life of the patient in a few hours; while in others it is protracted for weeks, and even months. The abdomen is usually flat when the disease first commences; but after it has existed for a short period, it more ordinarily becomes full and tense. The discharges, both from the stomach and the bowels, are of a yellowish, thin, liquid character, although in some cases it is of a rice-water appearance. The pulse is feeble; the skin, although occasionally hot and dry, is usually cold and clammy.



## CAUSES.

The causes of cholera infantum are, probably, the hot weather, the impure air of cities, and a lack of proper nutrition. This deficiency of nutrition may consist in a want of proper nutritive material in the breast milk of the mother; or the cow's milk, upon which the child is fed; or it may be owing to a want of proper nutriment in other forms.

## TREATMENT.

When called to treat the case in the early stage of the disease, small doses of neutralizing mixture should be frequently administered, until the diarrhœa and vomiting are arrested. Or if this fails,

R. Leptandrin.....grs. v.  
 Bi-Carbonate of Soda.....grs. iij.  
 Pulv. Camphor.....gr. j.  
 Sacch. Alba.....grs. xx.

Mix. Ft. pulv. No. xii. Sig.—One every half hour, or hour,  
 as the case may require.

If this should be rejected, and fail to arrest the vomiting, the stomach and bowels should be thoroughly packed with equal parts of hot water and whisky; and ten or fifteen drops of spirits of camphor, added to a tumbler half full of water, and one teaspoonful given every five or ten minutes. As soon as the vomiting is arrested, the following powders should be given:—

R. Quinine.....grs. x.  
 Frazerin.....grs. vj.  
 Xanthoxylin.....gr. j.  
 Sacch. Alba.....grs. xx.

Mix. Ft. pulv. No. x. Sig.—One every hour.

The diet should be carefully prepared, and be administered in such quality and quantity as the stomach will contain it, and will best nourish the system. If there should be a diarrhœa following the disease, from one-half teaspoonful

to a teaspoonful of the dysentery mixture should be given every two or three hours. If there be fever, it should be controlled by aconite, and the stomach and bowels strengthened by means of alnui, hydrastin, and frazerin.

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## INFLAMMATION OF THE ABSORBENT GLANDS, OR LYMPHADENITIS.

Inflammation of the absorbent glands may occur wherever these organs exist. The more frequent occurrence, however, is in the regions of the groin, neck, and axilla.

### SYMPTOMS.

The affected gland becomes swollen, hard, and painful. The inflammation usually extends to the sub-cellular tissue; not unfrequently several glands are inflamed when the tumour becomes very much enlarged. If the disease is of an acute character, in the course of from one to two weeks the tumour will become soft and fluctuating. The skin at length becomes absorbed, and the abscess is opened spontaneously. If it be a simple inflammation of one or more of the lymphatics, unattended by constitutional symptoms, the abscess, after discharging, will very frequently heal; or if it does not heal spontaneously, it is easily made to do so by the use of proper remedies. The chronic form of the disease is usually connected with a scrofulous or tuberculous constitution; and instead of the tumour depending upon ordinary inflammation and infiltration of liquor sanguinis into the gland, it is characterized by tuberculous and scrofulous deposits. In these cases the swelling is usually more gradual, and the gland presents a hard and indurated appearance. In the course of time not unfrequently the glands suppurate; but instead of healthy pus, a thin ichorous discharge occurs, and continues for a long

period. In some cases the swelling degenerates into an indolent ulcer, which manifests but little disposition to heal. The constitutional symptoms are usually those connected with serofulous or tuberculous patients, such as pallor, feeble digestion, and a weak and exhausted state of the system generally.

#### TREATMENT.

The treatment of acute inflammation of the lymphatics consists in applying to the tumour hot packs, changed every fifteen minutes, until the swelling disappears; or if it cannot be controlled by packing, constitutional treatment should be given, such as chimaphilin, quinine, and iron, followed by a brisk purge of anti-bilious physic.

If this does not disengage the tumour, warm emollient poultices should be applied, and suppuration induced. After the gland suppurates, it should be injected with a mild solution of sulphate of zinc once or twice a day, and the emollient poultice continued. Where there is chronic inflammation of the gland, it should be treated as the acute form until the inflammation is controlled. Afterwards the tumour should be painted with a strong tincture of iodine, and constitutional treatment instituted, as directed under the head of phthisis and serofula. If suppuration occur, the mild zinc ointment should be applied to the ulcer, while the remaining portion is kept painted with the iodine.

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#### GANGRÆNA ORIS.

The synonyms of *Gangræna Oris* are "*Cancrum Oris*," "*Sloughing Phagedæna of the Mouth*," "*Water Canker*," "*Stomacace Maligna*," "*Norma*," "*Necrosis Infantilis*."

Gangrene of the mouth is a disease commencing with that loss of vitality, which in inflammatory mortification is the last of a series of morbid changes.

## SYMPTOMS.

The first symptom is usually an indolent swelling of one cheek, without heat or redness, hard to the touch, but so little tender or painful, that the patient seems hardly conscious of it; and but for the enlargement being obvious to the eye, the disease would probably not be noticed in its early stage; and as it is, it may be mistaken for less serious affections.

The principal phenomena of the first stage are a peculiar glossy appearance of the skin of the cheek, a whitish or ash-coloured eschar in the mouth, without any inflammatory redness of the surrounding membrane, with the gums pale and spongy. The general health frequently does not appear deranged, though there may be slight feverishness or languor. As it goes on the interior of the cheek and lip slough, and the gums become affected. Saliva at first clear, but afterwards mixed with a sanious matter of a very offensive smell, flows rapidly. A white, livid spot appears on the outside, soon resulting in complete mortification. The teeth become loosened, and are thrown off with portions of the alveolar processes. The corrosive quality of the saliva sometimes produces new mortification in the angles of the mouth, and on the lower lip. Both sides of the face in the same individual have been known to be attacked, and in some cases all parts of the face, the upper maxillary bones, the palatal, the nasal, and even the ethmoid. This disease is attended with a weak, but frequent pulse, bowels at first confined, but towards the close very much relaxed, and with great diminution of heat of the extremities. Gangræna oris is commonly met with in children between the ages of two and five years, debilitated habit, low, marshy locations, and rainy seasons, seeming to aid in its development. It is also frequently one of the consequences of exanthematous fevers.

## PATHOLOGY.

We consider gangræna oris an idiopathic disease, any inflammation found about the part being only secondary, and not the cause of the gangrene. The swelling is caused by the circulation in the capillaries being retarded, and by the extravasation of the liquor sanguinis into the tissues, which is the reason why there is no attendant pain or redness in the beginning, the pressure destroying the vitality of the central portion. The pressure of the diseased tissue upon the capillary circulation necessarily affects the contiguous parts, and thereby extends the mortification, though if there be sufficient vital action, inflammation and suppuration may only occur; but it often happens that being influenced by the same state of general health, the lesion assumes the character of the adjacent part.

## TREATMENT.

The treatment of gangræna oris should be commenced with an emetic, followed by a brisk purge of podophyllin and cream of tartar, after which the following tonic mixture will be found valuable:—

R. Essential Tincture of Cinchona.....	℥j.
“ Hydrastus Canadensis.....	℥ij.
Simple Syrup.....	℥ij.
Carbonate of Ferri .....	℥ss.
Mix. Dose, from one-half to one teaspoonful four or five times a day.	

When the gangrene is confined to the soft parts, the mouth should be frequently washed in a strong decoction of baptisia tinctoria and comptonia asplenifolia. If the bone is affected, a solution of sulphate of zinc, of the strength of one dram of zinc to two ounces of water, should be applied as a wash, or injected on the diseased bone two or three times a day. In marshy districts much benefit may be derived by the occasional administration of quinine and iron.

Where the digestive organs are weak, cod liver oil, in combination with tonics, will be found of service. In a bad case of this disease, I derive much benefit by touching the parts two or three times a day with a probang, moistened in a solution of muriated tincture of iron, of the strength of one dram of the iron to one ounce of water. The patient should have plenty of fresh air, and a soft, nutritious diet. The surface should be bathed two or three times a week in alkaline water of moderate strength, followed by brisk friction. In some bad cases benefit has been received from the administration of small doses of myrrh, capsicum, and baptisin, and washing the parts with pyroligneous acid.

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## DYSENTERY.

The symptoms of this disease are severe pain in the abdomen, straining while at stool, accompanied by bloody evacuations. There is also great inflammation of the mucous membrane of the colon and rectum. The disease is divided into Acute and Chronic.

### ACUTE DYSENTERY.

The symptoms which precede this form, are dull pains in the abdomen, loss of appetite, a feeling of weariness, and costiveness, or diarrhœa, accompanied generally by fever, although in some mild cases this may be absent. In some instances the disease runs a mild course, unaccompanied with fever, and lasting only for a few days; whilst in others it may be one of the most violent forms of disease with which a patient can be afflicted. These different varieties may depend upon various causes, as the degree in which the disease occurs—whether simple or complicated. In simple dysentery there are frequent discharges from the bowels, which somewhat relieve the pains in the abdomen.

These discharges are not less than ten or twelve in the course of twenty-four hours, although they frequently exceed that number to a very great degree. They have at first scarcely any odour; but as the disease advances this increases, becoming very offensive. There is, generally, much tenderness in the abdomen, the extent of which may be known by the pain experienced on pressing the parts. The patient will have a feeling of hollowness in the stomach, with a feeble pulse, and sometimes attended with vomiting, although in the simple form this is not often the case. Generally, the disease changes favourably from the sixth to the tenth day; but the system may be so affected, as not to recover entirely.

Should the disease continue longer than a week or ten days, there is generally much danger to be apprehended; and should the patient recover, the disease is liable to become chronic.

#### BILIOUS DYSENTERY.

The secretion of the bile is generally diminished in this disease; but in some instances the liver and stomach become disordered at the outset, when it is known as bilious dysentery. In this form vomiting is more frequent; while the skin, tongue, and urine, assume a yellowish appearance, and the disease is accompanied by a high state of fever, and delirium.

#### ADYNAMIC DYSENTERY.

This form of the disease is more liable to attack those living in camps, vessels, and besieged cities, where they are compelled to subsist upon unwholesome food, suffer fatigue, &c. In such instances we find symptoms of a malignant character, as great thirst, a foul, black, dry tongue, a discoloured skin, often covered with dark spots, the stools black and very offensive, with depressed spirits, delirium, etc., while the sufferer seems to be struck with death in the beginning of the disease.



## INTERMITTENT AND REMITTENT DYSENTERY.

It is not uncommon, in marshy districts, where these fevers rage as epidemics, to find dysentery connected with them. They may occur at the same time, or at intervals; and may be distinguished from the simple form by the tendency to paroxysms, at which time there is more pain in the head, delirium, and nervousness.

## TYPHOUS DYSENTERY.

Dysentery is occasionally attendant upon typhous fever. The only essential difference in this from other forms of dysentery, is that it is connected with an adynamic state of the system.

## RHEUMATIC DYSENTERY

Differs from other forms in its mode of attack, the irritation passing from some part to the large intestines.

## EPIDEMIC DYSENTERY

Is sometimes regarded as a distinct variety of the disease; but I have observed that it may appear as an epidemic in any form. There is, however, one mark of difference; which is, that in epidemics of this disease, the symptoms are usually malignant.

## PROGNOSIS.

Should the disease take a favourable turn, the pain gradually diminishes, the discharges occur less frequently, leaving nothing but a slight diarrhœa. The most unfavourable symptoms are coldness of the skin, distention of the abdomen, the absence of griping pains, delirium, stupor, hiccough, &c. If the disease continue without a favourable change longer than the fourteenth day, the danger is to be regarded as very great; inflammation extending along the entire length of the colon is to be considered unfavourable.

## ANATOMICAL CHARACTERS.

When death results from dysentery, there is always inflammation of the mucous membrane of the rectum, and the lower portion of the colon; and ulcers frequently exist, which, combined with mortification, often occasion the removal of a part of the membrane. We find, in some climates, this disease affects the liver.

## CAUSES.

Dysentery may be caused by heat increasing the excitability of the mucous membrane, thus predisposing the surface to diminished action. It also attacks persons, who, after the heat of the day, expose themselves to the damp air of evening. It is frequently occasioned by eating unripe fruits, vegetables not easily digested, acid drinks, &c. While unripe fruits, and all other substances capable of irritating the alimentary canal are liable to produce dysentery, it is a mistaken idea that *ripe* fruits, when indulged in in proper quantities, contribute to this affection, as the most ample experience has demonstrated. In the Western country, previously to the cultivation of fruits, when the people subsisted mostly upon fresh and salt meats, with but sparing quantities of vegetables, the most violent and malignant forms of dysentery frequently occurred. Again, after fruits were cultivated, several seasons in which they were destroyed by an early frost, the people suffered most extensively from this disease. Again, I observed that those families who obtained an abundance of ripe fruits from a distance, enjoyed almost a complete immunity from it.

## TREATMENT.

The treatment of dysentery has hitherto been of the most empirical character. Bleeding, emetics, cathartics, mercurials, opium, acetate of lead, sulphate of copper, sulphate of zinc, nitrate of silver, leeches, blisters, nux vomica, and qui-

nine, have each, in turn, been regarded by Old Physic as specifics for dysentery; yet the most ample experience has shown that these remedies, both alone and in combinations, are not only incapable of curing the affection, or in any essential degree mitigating its severity, but, on the contrary, in the great majority of cases, aggravate it. Among all the modern improvements, there is none, perhaps, which has contributed so much to the relief of suffering humanity as that introduced by the Eclectic profession for the cure of dysentery. I have now reference to gelsemin. If there is any one remedy capable of producing a specific impression on disease, it is this. It is now over seven years since I first called the attention of the profession to the almost specific power of gelsemin to control dysentery. At that time I put this medicine to a most thorough test in one of the most malignant and fatal forms of dysentery I ever witnessed. After having treated quite a large number of cases, with what was then considered the most approved Eclectic plan, and finding it quite unsuccessful, I determined to try the effects of gelsemin. I found that it acted with almost magic power; and during that entire epidemic, although I treated six hundred and three cases with this remedy, I had no difficulty whatever in managing the disease, with the exception of two cases; and in those I did not consider the fault so much in the remedy, as in the circumstances which surrounded them. The treatment for dysentery, as practised at this time, in addition to that prescribed in another portion of this work, consists in the confinement of our patients in bed, in a recumbent posture, with large, hot packs to the abdomen, frequently changed, and the administration of gelsemin. Previously to giving the gelsemin, the stomach should be cleansed by an emetic, the bowels opened by means of large doses of neutralizing mixture and leontodin, after which from ten to fifty grains of triturated gelsemin should be added to a tumbler full of water; one teaspoonful of the

solution should be given every ten or twenty minutes, until the disease is controlled, or its full constitutional impression produced. The constitutional effects of gelsemin are double vision, photopsia, and ptosis. If the disease does not yield, antiperiodics and other remedies, as previously prescribed, may be given, although the influence of the gelsemin should be maintained. In chronic and other forms of dysentery, the treatment will necessarily be somewhat modified, yet the general treatment is the same.

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### DIARRHŒA.

Diarrhœa is a looseness, or flux from the bowels. This is a very common disease, characterized by frequent and urgent demands to evacuate the bowels.

#### SYMPTOMS.

Diarrhœa, when produced from whatever cause, is usually preceded by a sense of indigestion, fulness of the stomach, flatulency; and, usually, more or less colicky pains. The pain, however, usually subsides after the evacuation of the bowels, but returns as an indication of another discharge. The nature of the evacuations varies; as, in some cases, they are thick, and consist mainly of the ingesta; while in others it is more watery, or of a rice-water appearance, and in some cases consisting of disintegrated mucous membrane, blood, and bile.

#### BILIOUS DIARRHŒA.

Bilious diarrhœa is a very common disordered condition of the bowels, characterized by frequent discharges, composed of serum, highly coloured with either yellow or green bile. It is supposed to be produced, either by the secretions from the liver becoming vitiated, and irritating the alimentary canal, or by a discharge of a superfluous quantity of bile into the duodenum.

## MUCOUS DIARRHŒA.

Mucous diarrhœa consists in discharges of a semi-transparent character, which at first is mixed with ingesta, but afterwards composed principally of mucus. It is produced by colds, and catarrhal affections generally.

## SEROUS DIARRHŒA.

Serous diarrhœa is characterized by heavy evacuations of a thin, watery character, varying in chemical and physical constituents, as it is mixed with blood, bile, ingesta, &c.

## CAUSES.

Diarrhœa may originate from any cause which disturbs the normal condition of the digestive canal, such as improper diet, either in quantity, quality, or period. In some constitutions, certain articles of food, as milk, cheese, cabbage, onions, &c., produce this disease. It is also produced by a weak state of the stomach; the food not being properly digested, ferments and generates irritable gases and acids. Diarrhœa may also exist as a symptomatic disease, as in children who are teething, from over-mental labour, great fatigue, and a weak, debilitated state of the system. It is also produced by the improper use of irritating remedies.

## TREATMENT.

In the treatment of diarrhœa the cause should be thoroughly studied, and, so far as practicable, removed; after which the bowels should be opened by means of small doses of leptandrin and neutralizing mixture. If it is connected with fever and catarrhal symptoms, the patient should be placed in bed, the surface bathed, and hot packs applied to the abdomen, and small doses of aconite or veratrum given to control the fever. If the bowels are in a weak and relaxed condition, the patient should be allowed to drink freely of a decoction of *comptonia asplenifolia*. If it is connected

with intermittent and remittent fevers, as it frequently is in marshy and ague districts, quinine and hydrastin should be given, in connexion with small doses of opium. If it is a bilious diarrhœa, leontodin, neutralizing mixture, and the compound tincture of camphor and opium will soon control it. If the diarrhœa assume the chronic form, the following is a most valuable remedy:—

R. Chlorate of Potassæ.....grs. x.  
 Myricin .....grs. v.  
 Quinine.....grs. x.

Mix. Ft. pulv. No. xij. Sig.—One every two hours.

If connected with children who are teething, small doses of geranin and neutralizing mixture, in connexion with the teething mixture, will usually control it. If the diarrhœa assume a cholera character, it should be treated according as I have prescribed under that head.

## CONSTIPATION.

By constipation is understood a collection of excrementitious matters in some part of the intestinal tube.

### SYMPTOMS.

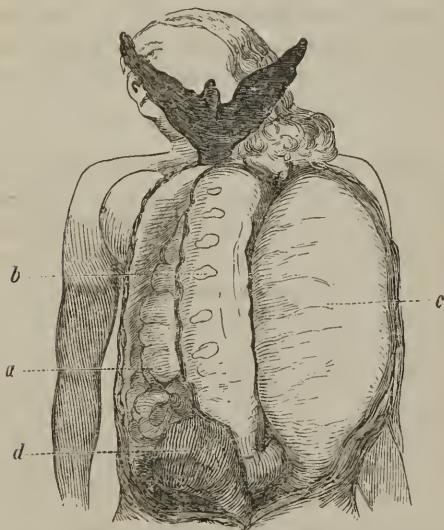
Constipation is marked by the infrequency of the evacuations of the bowels, and by the occurrence of fulness and tension in parts of the abdomen. Constipation has usually been considered as of two forms; the one in which the patient was of a lax and weak habit of body,—the other that in which the disease was produced by rigidity of the muscles and irritable temperament. The first form of constipation is characterized by a costive, or more consistent state than usual of the fecal excretions, with less frequent calls for evacuations. The constitutional symptoms are pain in the head, fulness and tension of the abdomen, a foul tongue,

loss of appetite, and listlessness, together with an undefinable sense of oppression.

#### CAUSES.

One of the first causes of constipation is that of a debility of the muscular coat of the intestines. It may also be produced by the secretions concerned in the process of alimentation becoming vitiated, either in quality or quantity. It may also depend upon imperfection of the diet, such as introducing into the stomach food which can be only imperfectly dissolved in the gastric secretions; also by food which

FIG. 27.



(Fig. 27. Remarkable displacement of organs, in consequence of intestinal obstruction. *a*, Caput Coli; *b*, Ascending portion of Sigmoid Flexure; *c*, Descending portion; *d*, Gravid Uterus turned a little down.)



lacks the proper quality of nutrition. Constipation is also a very common occurrence as the result of a morbid state of the brain and nervous system. The nerves and brain, when diseased, fail to dispense to the bowels that amount of nerve influence essential to their healthy condition. Again, constipation may be produced by irritating medicines, and the constant use of drastic purgatives. It may also be produced by excessive secretions from other portions of the body; as elimination is carried on from the body by the various emunctories, and when there is an excess of elimination from one, it is proportionately diminished in another. Mental emotion, grief, anxiety, &c., also produce constipation. It may also occur as the result of stricture of the rectum, or other portions of the bowels. A remarkable case is shown by Mr. Easton, in which there was an accumulation of fecal matter in the ascending colon. (See fig. 27.)

#### TREATMENT.

In the treatment of constipation of the bowels, the cause or causes of the difficulty should be carefully studied. If dependent upon a weak and lax state of the muscular fibre, hydrastin and iron are the remedies, say, let the patient take one grain of hydrastin, and two of iron by hydrogen, five or six times a day. For the present relief, the bowels may be opened with the compound podophyllin granule once a week. If dependent upon vitiated secretions of the liver, stomach, &c., tonic tea should be drunk freely during the day, and two or three grains of frazerin, and one grain of bicarbonate of soda, taken every night at bed-time; and to maintain a soluble state of the bowels, the patient should eat unbolted bread, and freely of fresh fruits. Where it is produced by spinal and cerebral difficulties, the nervous affection should receive especial attention, while the bowels should be kept open by means of euonymin, in combination with cypripedin. Ten grains of euonymin, and five of cy-

pripedin, divided into two powders, and one morning and night, will usually accomplish this purpose. The surface should be frequently bathed and rubbed with a coarse towel, and the patient should attend to the demands of the bowels every morning. Where the constipation is dependent upon stricture of the rectum, the bowels should be moved by means of large stimulating injections, and the stricture removed by proper treatment, such as the introduction of the bougie, the use of menisperm, gelsemin, muriate of ammonia, &c. Where the constipation is owing to a nervous and irritable habit, the following mixture is most valuable:—

R. Essential Tincture of Scutellaria.....℥j.  
 “                   Cypripedin. ....℥ij.  
 “                   Leptandria Virg.....℥iij.  
 Simple Syrup.....℥vj.

Mix. Sig.—One teaspoonful three or four times a day.

The diet and habits of patients labouring under constipation of the bowels should be well regulated, and all drastic and irritating purgative medicines carefully avoided, as they tend to debilitate the alimentary canal, and in other ways to derange the system.

## INFLUENZA — CATARRH.

We have numerous epidemics of catarrh throughout America, and it is not confined to the human race; for horses, dogs, and cats, are subject to it. There is a great difference of opinion respecting its contagious character; many facts connected with the disease would lead us to infer that it was.

### SYMPTOMS.

The symptoms of influenza are soreness throughout the body, connected with stiffness of the muscles. In some cases there is chilliness, and more or less inflammation of the air-passages. The mucous membrane of the throat and

nasal passage is in a state of congestion, and in a few cases results in inflammation. During the existence of the congestive stage the mucous lining is covered with abundant secretion of liquor sanguinis, which is discharged with the greatest freedom from the mouth and nose. The constitutional symptoms of influenza are most various, frequently producing nervous irritability, headache, loss of appetite, hot and dry skin, together with general febrile irritation.

#### TREATMENT.

The treatment for influenza consists in a hot bath, followed by brisk friction. The bowels should be opened with neutralizing mixture and leontodin, and the febrile symptoms controlled by small doses of aconite. If the influenza is of an epidemic character, the following compound should be given:—

R. Quinine.....grs. x.  
 Rhein .....grs. v.  
 Sacch. Alba.....grs. xx.  
 Mix. Ft. pulv. No. xij. Sig.—One every two hours.

If there are very much inflammation and discharge from the mucous membrane of the nose and pharynx, the patient should be allowed to inhale the burning fumes of camphor, or muriate of ammonia. The patient should keep in a warm room, avoid violent exercise, and subsist upon a sparse diet.

### MELÆNA, OR HEMORRHAGE OF THE BOWELS.

Hemorrhage of the Bowels, when it occurs as an original functional disease, usually assumes the form of Melæna, the blood assuming the black appearance characteristic of that affection, by changes in, or after the act of extravasation. The name melæna is improperly employed, as in its most extensive sense it includes all black discharges from the

bowels, whether of altered blood, or vitiated bile; and if applied to hemorrhage alone, it is inadequate, as there are many instances of intestinal hemorrhage in which the discharges are not black.

## SYMPTOMS.

The evacuation of blood in intestinal hemorrhage is usually preceded by symptoms of some well-known disease, such as enteritis, dysentery, enteric fever, scurvy, purpura, &c.; but often by those less definite, as oppression in the abdomen, pains in the hypochondriac region, a furred tongue, disordered appetite, constipation or diarrhœa, sallow or dingy complexion, dejection of spirits, languor, and more or less disorder of the circulation, indicating visceral disorder and impaired digestion. The patient is suddenly attacked with griping pain, nausea, increased paleness, depression of the pulse, coolness of the extremities, attended by an offensive discharge of black-coloured blood from the bowels. In some instances the diarrhœa, with part or all of the same symptoms, may continue for several days without the hemorrhage being noticed; but in others the hemorrhage may be the first obvious sign of the disease, in which case there is sometimes extreme depression, which may prove fatal. There may be no evacuations, and sudden death occur from intestinal hemorrhage, which may be suspected if there has been previous partial congestion or organic disease of the bowels; and if tumefaction, with dulness on percussion is discovered, which did not before exist. The quantity and quality of the blood are various; the quantity, in some instances, being very small, and in others amounting to pints, or quarts. The colour is sometimes bright red, but often very dark. In consistence it may be fluid, grumous, or tar-like. It may be pure, or it may be mixed with bile or intestinal secretions. The character of the disease may often be determined by the nature of the evacuations; as the blood coming from the large intestines is usually a bright

red colour, and from the small intestines dark red, copious, and pure. If issuing from membrane, disorganized by inflammation, or malignant ulceration, as in fevers and cancer of the bowels, it has the appearance of coffee-grounds. If there is a small discharge of bright blood, mixed with mucus, active inflammation, as in dysentery, may be suspected; and when the evacuation is black and tarry, with both a red and bilious tinge, it may have come from the liver.

The course of this disease is uncertain. It may prove fatal, but rarely, unless complicated with serious organic derangement of the bowels, or other viscera, though after cure predisposition may lead to a return.

#### DIAGNOSIS.

It is not always easy to decide, in case of bloody evacuations from the bowels, whether intestinal hemorrhage really exists or not. Discharges of dark and altered blood are often a mere attendant upon hæmatemesis, and may be the result of it even when there is no vomiting, or they may be derived directly from the mucous membrane, and there still be vomiting of blood, as the causes of hæmatemesis act with nearly as much energy upon the bowels as on the stomach; and in another case vomiting and purging may both exist, though the seat of the hemorrhage be in the bowels exclusively. In deciding whether the stomach or bowels is the source of the hemorrhage, we must judge according as the symptoms point more directly to one than the other, or as they embrace both. Hemorrhages may be distinguished from bile by diluting them, or by adding common salt, in either of which cases the blood will assume its proper red, and the bile its yellow hue. True melænotic matter may be mistaken for hemorrhage, but may be distinguished by its wanting the redness of blood.

#### CAUSES.

Whatever is capable of producing irritation, congestion, inflammation, or ulceration of the intestinal mucous mem-

brane, may occasion this form of hemorrhage. In cases of predisposition, drastic cathartics are liable to bring on an attack. Inflammation and ulceration of the mucous coat, cancers, aneurisms, organic diseases of the heart, suppressions of the menses, malignant fevers, purpura, and scurvy, are all occasionally attended with hemorrhage from the bowels.

#### TREATMENT.

After having discovered the nature and character of the hemorrhage, it may be necessary to relieve the discharge at once. If it occur from the mucous membrane, either as the result of exudation from the weakened capillaries, or from the rupture of large vessels, as in cases of ulceration, cancers, and other affections of the bowels, it may usually be controlled by injecting into the bowels a strong decoction of matico. This should be done by inserting a long catheter into the bowels, and pumping through it from one to two pints of the decoction while the patient is lying with his hips slightly elevated.

If this should not control the hemorrhage, take tannin, geranin, and trillin, of each one dram; thick mucilage of gum Arabic, six ounces. Rub well together, and inject the bowels as directed above. If this should fail after a proper trial, the patient should be put under the influence of the nitrate of silver pill, as directed under head of typhoid fever. After having arrested the hemorrhage the patient should be placed upon such treatment as will remove the cause of the difficulty. Where the hemorrhage is active, and followed by great prostration, the ligatures should be applied, and so adjusted as to prevent the excessive loss of blood.

#### HEMORRHAGE FROM THE RECTUM.

Hemorrhage from the Rectum may depend on the same pathological conditions as other hemorrhages, but is most frequently connected with piles.



## SYMPTOMS, COURSE, ETC.

Before the appearance of blood there is usually uneasiness in the region of the sacrum, with heat about the anus, indicating congestion of the mucous membrane; but there may be no premonitory symptoms. It is usually the accompaniment of hemorrhoidal tumours, but occasionally it comes in a full stream with no explanatory circumstances attending it. The quantity is sometimes large, or it may be very small. The colour is various, accordingly as it comes from a vein or artery.

The hemorrhage is generally quite irregular in its occurrence, but is sometimes periodical; and in females occasionally comes on monthly, and does sometimes assume the same periodical character in men.

When tumours can be detected, the bleeding may be supposed to depend upon piles. When the blood is pure, and there has been previous uneasiness in the sacrum, it is probably from the rectum; but if tar-like, it very likely proceeds from some higher position.

Hemorrhage from the rectum is sometimes dangerous, but rarely so, being sometimes even beneficial.

## CAUSES.

The causes of hemorrhage from the rectum are whatever occasions irritation, congestion, or inflammation of the mucous membrane of the rectum, also suppression of the menses, and other habitual discharges,—aided, of course, by a hemorrhagic state of the circulation, but the most frequent source is in hemorrhoidal tumours.

## TREATMENT.

The immediate hemorrhage from the rectum may be controlled by the same means as those prescribed for hemorrhage of the bowels, with the exception that where a more active remedy than the matrico, tannin, &c., is required, ni-



trate of silver may be injected into the rectum, or the following ointment may be used:—

R. Red Styptic Powder .....	℥ss.
Oxide of Zinc.....	℥j.
White Wax.....	℥j.
Lard .....	℥ij.

Melt the wax and lard together, and when cool add the other ingredients, stirring it until cold. This ointment may be applied by means of a little lint, after which the disease should be treated as prescribed under the head of hemorrhoids; although this ointment, in combination with mild laxatives, has cured many bad cases of piles. If the hemorrhage is produced by cancerous affections of the rectum, sulphate of zinc, or the solid nitrate of silver may be used to arrest it.

## PNEUMOTHORAX.

This is not, properly speaking, a disease, as it may depend upon various other affections. It may be defined an affection, in which the air is confined in the pleural cavity.

Pneumothorax may be divided into three varieties:—1st, that form in which the cavity of the pleura has no communication with the air; 2d, that in which the communication is through the walls of the chest; 3d, that in which it communicates with the air through the bronchial tubes.

### SYMPTOMS.

This disease is characterized by a difficult breathing, which is the most prominent symptom of the affection,—the distress depending upon the quantity of air in the pleura, and also on the condition of the opposite lung. If the accumulation of air is slow, the degree of pain is lessened, owing to the adaptation of the lungs to the new condition; but its most common mode of appearance in the cavity is violent, occasioning severe pains in the side, and sometimes causing

discharges of pus. When there is a communication between the lung and the cavity of the pleura, there is a painful cough attending the dyspnœa. If the air should be between the lung and ribs, the sound produced by percussion is much clearer than in healthy portions of the body. If there is liquid in the cavity, it occasions a dull sound. We can determine many things by auscultation, which otherwise could not be discovered; as the cavernous breathing, and cavernous sound of the cough and voice. When the quantity of the liquid is very considerable, a peculiar sound, as of splashing, is heard, especially when the patient is moved suddenly. Another sound, occasioned by coughing, resembles the noise made by the striking of a hammer. The progress of this disease varies. In some instances it proves fatal in a few hours; at other times it remains for months, and even years.

#### CAUSES.

Pneumothorax is most frequently occasioned by a tuberculous abscess of the lungs, and we very often find it in connexion with phthisis. Such attacks are sudden.

The disease sometimes results from a gangrenous abscess of the lungs, and rarely from a cancerous ulceration. Where there is empyema, a communication is formed from the lungs into the pleura, the pus passing into the bronchial tubes, and there is released. Sometimes, instead of passing into the lungs, it proceeds along the external wall of the chest, forming a communication with the air-passages. Pneumothorax may be caused, also, by the fracture of a rib, injuring the lung, or by a forcible compression externally, causing a rupture of the pleura and air-cells. Occasionally the liquids contained in the pleural cavity decompose, and send forth gaseous matter. Sometimes air is forced from the pleura, without any apparent injury. In this disease the nature of the gas is dependent somewhat upon the cause of the affection, being sometimes extremely offensive; at others having scarcely any odour. Sometimes the lung is very much dis-

placed; but the degree of compression varies, at times being scarcely perceptible, at others the size being very much diminished. Pneumothorax is, in most cases, a fatal disease; although the patient may recover, even though it is connected with phthisis.

## TREATMENT.

When called to treat a case of pneumothorax, if there is great dyspnœa, a hot sinapism should be applied to the chest, and from one-eighth to one-quarter of a grain of opium should be administered. The feet should be placed in hot water; and if there is pleural inflammation or irritation, asclepin and oleo-resin of lobelia should be given.

R. Asclepin.....grs. x.  
 Oleo-Resin of Lobelia.....grs. ij.  
 Sacch. Alba .....grs. xxx.

Mix. Ft. pulv. No. x. Sig.—One every hour until relief is afforded.

If there is extensive accumulation of air in the thorax, and it threatens immediate suffocation, it should be evacuated by means of a trocar and cannula. The operation should be performed as directed under the head of empyema. It should be resorted to, however, only in cases where there is great danger. In cases where the atmosphere enters the pleural sac, through an opening made in the bronchia and section of the lung, as the result of vomica, I have known benefit to be produced by inhaling the burning fumes of muriate of ammonia. Where the atmosphere passes through an external opening, pads and bandages should be supplied, so as to prevent the farther ingress of atmosphere; and remedies given to combat the inflammatory symptoms, such as aconite, veratrum, &c. Where it is produced by the decomposition of fluids, the effect of pleuritis, benefit may be derived by administering one teaspoonful of carbo ligni, in combination with small doses of anti-bilious physic and quinine, four or five times a day.

VARIOUS ORGANIC AFFECTIONS OF  
THE LUNGS.

In addition to those affections which have already been mentioned, the lungs are subject to various others. Extraneous substances entering the larynx frequently lodge in the bronchia, occasioning much suffering, and sometimes speedy death, although cases are on record in which a number of years have elapsed before the foreign substance was extracted, and the patient relieved of the troublesome cough occasioned by its presence.

We frequently find bony, calcareous, and cartilaginous tumours, after death, in the upper portion of the lungs of aged persons. They are generally small; hence they may be present during life for a considerable length of time, while the patient is unaware of their presence.

Serous cysts and hydatids have been known to exist in a few instances. The latter may grow to such a size as to disturb the action of the lungs. Small cysts have occasionally been expectorated, thus showing that the affection was present; but in most instances its existence is not known until after death. It may sometimes be difficult to distinguish it from pleurisy, but the following symptoms are sufficient to readily discern the one from the other:—frequent pains in the affected parts; difficult breathing, which sometimes terminates in death; dulness on percussing; a lack of constitutional symptoms; the absence of sound, occasioned by breathing, &c. Should the tumour be pierced by a grooved needle, and colourless liquid exude, mingled with small pieces of membrane, which is not rendered turbid with nitric acid or heat, it may be considered a sure test of the existence of hydatids.

We sometimes find malignant tumours in the lungs, as well as other parts of the body. The medullary and fibroplastic diseases are sometimes met with. They may consist

of either encysted or non-encysted tumours, which appear to soften, and thereby form a cavity. They are characterized by difficulty in breathing, and a slight cough, which increase until they assume the form of constitutional symptoms. The breath, in this stage, is frequently very offensive. We find by auscultation and percussion that the lungs are sometimes consolidated, and sometimes cavities are formed. The tumour sometimes crowds upon the blood-vessels, œsophagus, &c., causing numerous disorders. The most positive indication presented by this disease, is a similar affection in other portions of the body. Cirrhosis of the lungs is a wasting away of the cellular tissue of that organ, followed by a hard, white structure. The disease may affect the whole, or a small portion of the lung. The opposite lung, the heart, &c., are forced into the diseased portion of the thorax, the wall of which is also pressed down. The symptoms are, rapid pulse, cough, with a discharge of mucous, fetid matter, etc. By percussion we discover a tubular, and sometimes a cracked metal sound; by auscultation we find all the appearances of a lung solidified, and containing cavities. It may be distinguished from phthisis by the absence of hectic, by its slow advancement, its restriction to one lung, and displacement of the heart. Cirrhosis of the lung, in some respects, might be confounded with pleurisy, but may be distinguished from it by the turning of the ribs inwards, while the disturbance of the system is greater. The disease usually advances slowly, but always proceeds to a fatal termination. In some cases, instead of the purulent and other discharges from the lungs, which I have noticed, the sputa become loaded with dark, pigment matter; yet the symptoms are those of true pulmonary phthisis. This is owing to the degeneration of the tuberculous exudation into pigment granules. The progress and effects of the disease are the same as those of ordinary phthisis. In some cases of pulmonary affections the bronchial glands become involved, and

become loaded with pigmentary, melænotic, and tuberculous matter. They may be detected by dulness on percussion above the clavicle, and a correspondent enlargement of the lymphatics of the axillary and other portions of the body.

#### TREATMENT.

The treatment of these affections must depend altogether upon their extent, nature, and character. Foreign substances may frequently be removed from the bronchia by an active lobelia emetic, and cancerous degeneration of the lungs may be mitigated by an active, tonic, and supporting course of treatment.

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### DISEASES OF THE LIVER, BILIARY DUCT, AND GALL BLADDER.

There is, perhaps, no organ in the body, the anatomical character and function of which has been more carefully studied than that of the liver. This has arisen, in part, from the important relation it holds to the digestive apparatus, and in part to the supposition entertained by both ancient and modern practitioners, that whatever malady affected the human organism, the liver participated largely in the difficulty.

Nothing is more common at this time than to hear physicians attribute all the common maladies and indispositions of their patients to a derangement of the liver. In fact, it is supposed to be an ample apology for the doctor's ignorance to denominate the case a bilious affection. This universal hepatic pathology has had its corresponding therapeutics; hence blue mass, a calomel pill, or a mercurial purge, is the universal panacea with a certain class of practitioners. Notwithstanding these absurd notions and extravagant methods of treatment, the liver is liable to a variety of disorders, and, when affected, exerts a marked influence on the organs and tissues of the body. Among the most common affections of



the liver, is that of inflammation, or hepatitis. Inflammation of the liver may be confined to the peritoneal covering, or it may involve the entire substance of the liver. It is, in many instances, a difficult matter to decide whether the inflammation involves the structure of the liver, or is confined to its covering. This we think, however, can usually be determined by a careful analysis of the symptoms. If the inflammation be confined to the peritoneum, there will be sharp, acute pain, which is very much aggravated by deep inspiration; but there is no increase of dulness on percussion, nor is there hypertrophy or enlargement. If the inflammation is extensive, it is usually connected with a short, irritable cough, and a pleuritic pain in the left shoulder. If the inflammation extend to the substance of the liver, it is soon manifested by an increase of bulk, a marked derangement of its function, and more extensive constitutional disturbance. The season and climate, also, contribute much to a correct diagnosis, as inflammation of the substance of the liver seldom occurs, only in tropical climates, or in a temperate climate during the hot season, while peritoneal inflammation of the liver occurs in cold climates, and in the cold season. Again, the character of the pain may serve as an important diagnostic symptom; as the pain connected with the inflammation of the substance of the liver is of an aching, disagreeable character, while that connected with its membrane is always acute and harassing. Inflammation of the membrane, or substance of the liver, may terminate either in resolution, chronic inflammation, or separation. Where it terminates in resolution, the symptoms gradually subside, and the organ is restored to its natural function. When it terminates in chronic inflammation, there is usually more or less hypertrophy, or enlargement of the liver, which is indicated by increased dulness upon percussion, and the extension of the liver beyond its normal boundaries. There are also derangement of the stomach and bowels, and a



sense of weight and uneasiness in the right hypochondrium, with dry skin, high-coloured and scanty urine. Chronic inflammation of the liver, however, may occur without the existence of the acute form; in which event it usually occurs insidiously, but is characterized by the symptoms above described. Both the acute and the chronic variety may terminate in suppuration; in which event there is a sallow and dingy appearance of the skin, nausea, and sometimes vomiting, loss of appetite, high-coloured urine, hectic fever, dull, aching pain, and great tenderness over the region of the abscess. A case occurred in my practice, where acute hepatitis terminated in suppuration, and involved nearly one-half of the liver. I opened the abscess by dissecting through the parietes of the abdomen, and evacuated upwards of one quart of pus; after which the case proceeded to a favourable termination. Nothing is more common than to observe several abscesses in different portions of the liver, on inspecting that organ, after death, from hepatitis.

#### CAUSES.

Among the most common causes of hepatitis is that of exposing the body to a high temperature for a long period; also sudden exposures to heat and cold, humid and miasmatic atmosphere, the habitual use of mercurial medicines, high living, sedentary habits, finally anything which contributes to inflammation in other parts of the body, may give rise to hepatitis.

#### TREATMENT.

In addition to the treatment I have already given in another portion of the work, after applying the mustard sinapism to the side, hot packs should be applied, and protected by means of oiled silk, and changed as often as they get cold for ten or twelve hours, and in bad cases even longer. If it is inflammation of the peritoneum, asclepin, in combination with the essential tincture of corollorhiza odontorhiza, will be found most beneficial. If the inflammation assume

a chronic form, leontodin and neutralizing mixture, given in small doses, and repeated at short intervals, is a most valuable remedy. Where abscesses form on the liver, benefit may be obtained by administering the following compound:—

R. Menisperm. .... grs. x.  
 Leontodin ..... grs. xx.  
 Muriate of Ammonia..... grs. xv.  
 Sacch. Alba..... ℥j.

Mix. Ft. pulv. No. xx. Sig.—One every three hours.

In connexion with these powders, the irritating plaster should be applied, and be continued until free separation occurs.

#### HYPERTROPHY OF THE LIVER.

Hypertrophy of the Liver is simply an overgrowth, dependent upon an increase of its structure, without any inflammatory appearance. It may affect a part, or the entire liver. Where it is simple hypertrophy, it does not amount to disease, but may produce ascites by pressing upon the large abdominal veins.

#### ATROPHY OF THE LIVER.

This is the reverse condition, and is usually dependent upon defective nutrition. It does not amount to disease, unless the atrophy is so extensive as to impair its function.

#### INDURATION OF THE LIVER.

Induration may occur as the result of hardening of the parenchyma, and is usually one of the symptoms of other affections of the liver.

#### SOFTENING OF THE LIVER.

This is usually the result of some long-continued fever, or it may occur as the result of inflammation.

#### FATTY LIVER.

Fatty Liver may depend upon a quantity of oil secreted in the hepatic cells. Fatty degeneration of the liver has

been observed to be very common in drunkards, and is supposed to be produced by the introduction into the system of a large quantity of carbon, in the form of spirits. Fatty liver is also common in pulmonary diseases, and other cases where the respiratory functions are interfered with.

#### TREATMENT.

The treatment for fatty liver consists in abstaining from alcoholic drinks, and other carbonaceous substances, increasing the activity of the respiratory organs, and other emunctories of the body, administering small doses of podophyllin and leontodin, and the free use of succulent vegetables and fruits.

#### CIRRHOSIS OF THE LIVER.

Cirrhosis of the Liver consists in a development upon the surface, and through the substance of the liver, of small corpuseles, varying in size from a pin's head to a pea. The colour of the corpuseles is mostly yellow. According to Dr. Carswell, this disease is essentially atrophy of the lobular structure, originating in inflammation. According to the observations of Mr. Bennett, the hepatic lobules undergo pigmentary degeneration, and the hepatic cells become filled with a fatty or waxy matter.

The symptoms of this condition of the liver are local and general dropsy, jaundice, hemorrhage from the stomach, bowels, and other portions of the body, together with irregular bowels, dry and sallow skin, capricious appetite, morose and irritable temper.

#### TREATMENT.

Treatment for cirrhosis has generally been unsuccessful, although much may be done to palliate the disease by regulating the diet and habits of the patient, slightly stimulating the liver with small doses of podophyllin and leontodin, and applying the irritating plaster, and maintaining a free discharge.

## WAXY LIVER.

Waxy liver is the result of a peculiar degeneration of the hepatic substance. The liver usually becomes enormously enlarged, and connected with scrofulous and syphilitic patients. It is probably the result of the poisonous influence of mercury.

## NUTMEG LIVER.

This name has been applied to the liver, when it presents an appearance like that of a nutmeg. It is probably the result of a degeneration of the hepatic substance.

## TUBERCULOUS LIVER.

Tubercles are frequently found in the liver, as well as in other parts of the body, and are the result of albuminous degeneration.

## HYDATIDS OF THE LIVER.

Hydatids, or cysts, containing a yellowish, watery fluid, are often found in various sections of the liver.

The liver may also be the seat of cancerous affections. The diagnosis of these various morbid conditions of the liver, is frequently a most difficult matter during life. In cancerous affections of the liver, however, the disease may sometimes be detected by the peculiar discharges from the bowels, together with the leaden appearance of the skin, and the general malignancy of all the symptoms connected with the affection.

FUNCTIONAL DISEASES OF THE LIVER —  
NEURALGIA.

The liver is frequently the seat of hyperæsthesia, and is characterized by a heavy, dull pain in the right hypochondrium. Sometimes, however, the pain is sharp, acute, and of an intermittent character.

## CAUSES.

The causes of neuralgia of the liver are the same as those which produce the disease in other portions of the system, although it is more commonly connected with gouty and rheumatic patients than others.

## TREATMENT.

Treatment for neuralgia of the liver consists in the administration of quinine, in connexion with leontodin, scutellarin, and eypripedin. In case the disease should prove obstinate, the following compound has proved of value:—

R. Prussiate of Iron.....grs. xx.  
 Aconitin.....gr. j.  
 Salicine .....grs. xx.  
 Sacch. Alba.....grs. xx.

Mix. Ft. pulv. No. xv. Sig.—One every two hours.

Benefit may also be derived from bathing the part in chloroform liniment.

## CONGESTION, OR HYPERÆMIA OF THE LIVER.

This disease consists in a preternatural fulness of the blood-vessels of the liver, and is characterized by weight, oppression, and tension in the region of the liver. There is also constipation or looseness of the bowels, loss of appetite, furred tongue, yellow appearance of the eyes, skin, and urine. These symptoms are not all present at once, but usually occur in some form modified according to the severity of the case. Upon percussing the liver there will be increased dulness, and it will be observed to be increased in bulk.

## CAUSES.

Whatever excites irritation of the liver, may produce congestion. Hence it is very frequently produced by a continued use of mercurials, and other hepatic irritants and stimulants.

## TREATMENT.

The treatment of active congestion of the liver consists in giving warm baths, and otherwise exciting the functions of the skin and kidneys, the application of hot packs over the region of the liver, and the liberal use of veratrum to control the circulation. If the bowels are costive, small doses of leptandrin and neutralizing mixture should be given. If the disease is of a chronic character, an irritating plaster should be applied over the region of the liver, the patient should have frequent warm baths, followed by friction, the kidneys should be stimulated by means of barosmin and apocynin, and the liver with small doses of leontodin and euonymin.

## DEFICIENT SECRETIONS IN THE LIVER.

Deficient secretions of the liver are recognised by constipation of the bowels, light or clear-coloured stools, dyspeptic habits, and imperfect nutrition.

## CAUSES.

The causes of imperfect secretions of the liver may be owing to a want of activity in that organ, or a deficiency of bile element in the blood.

## TREATMENT.

When it is dependent upon a want of energy in the liver, leontodin, irisin, and leptandrin, given in proper quantities, will usually remedy the difficulty. When owing to a deficiency of bile element in the blood, the following compound should be given:—

R. Sulphur.....	3j.
Chloride of Soda.....	3j.
Carbonate of Ferri.....	3ss.
Soda Hypophosphite. ....	3j.
Syrupus Simplex.....	3iv.

Mix. Sig.—One teaspoonful every two or three hours.

The diet should be nutritious, and composed largely of fruits.

#### BILIARY CALCULI, OR GALL-STONES.

Biliary Calculi are concretions formed in the hepatic, or biliary ducts. They vary in size and position, and consist of a single stone, or a large number. They are usually of a yellowish, or reddish-brown colour, and of various shapes. They consist of cholesterin and the colouring matter of the bile. They may exist in the gall-bladder, or in the ductus communis. When they exist in the gall-bladder, they may remain there for a long time without producing any disagreeable symptoms: but if they attempt to pass the duct, it is usually accompanied by violent spasmodic pains, which occur mostly in paroxysms. If the stones should remain in the duct for any considerable length of time, it will produce inflammation, jaundice, and other symptoms of active congestion of the liver.

#### TREATMENT.

When it is determined that gall-stones are passing through the gall-duct, a free lobelia emetic should be given. If the emetic does not facilitate their passage, and relieve the patient, a belladonna plaster should be applied over the seat of the difficulty, and neutralizing mixture and small doses of podophyllin should be given at short intervals, until a free action of the bowels is produced. If this does not give relief, hot packs should be applied, and the emetic repeated. This course of treatment, when persisted in, will usually relieve the difficulty.

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#### ACUTE SPLENITIS.

In Acute Splenitis inflammation may occur either on the peritoneal coat, or the parenchyma of the spleen, or both at



the same time. The symptoms differ in some degree, though it is sometimes difficult to detect them during life.

#### SYMPTOMS.

This disease is marked by pains in the left hypochondrium, which are increased by pressure, coughing, &c. At times they are sharp and lancinating; at others, dull and undefined. In some instances the pain is absent, and the patient experiences only a feeling of oppression.

In the chronic form of this disease the patient is attacked with a chill, which is usually followed by fever. Sometimes there is a feeling of disquiet above the region of the stomach, with vomiting, &c. Generally the bowels are constipated, although diarrhœa may occur as the result of irritation. The system, at such times, may be vigorous, or destitute of all activity; in which latter case the disease is mostly symptomatic. Usually the simple form of the disease terminates favourably, but in some instances death may occur in a week or ten days.

Splenitis may often be mistaken for diseases of various other organs with which it is connected, as inflammation of the stomach, colon, kidneys, &c. The disease which is most frequently confounded with it is pleurisy, the symptoms being very similar; but the absence of ægophony, the rough sound of the pleura, heaviness towards the abdomen, &c., mark the distinction sufficiently.

#### ANATOMICAL CHARACTERS.

After death the spleen is found to be much increased in size, and of a dark-red colour, yielding under pressure, &c. When death has not occurred until in the advanced stage of the disease, quantities of pus are observed in cavities, or extravasated through the structure of the viscus. The abscess (when only one occurs) is very much enlarged, in some instances occupying the entire spleen.

## CAUSES.

Sudden emotions of the mind, suppression of the menses, great muscular exertion, and external injury, may all occasion acute splenitis. Inflammation of the spleen is also a frequent accompaniment of intermittent and remittent fevers, and is of more frequent occurrence in miasmatic districts than in other localities.

## TREATMENT.

The treatment of splenitis should be commenced by applying hot packs over the spleen, and changing them as fast as they get cold. If the stomach is vitiated, a mild lobelia emetic should be given; after which one-half dram of the essential tincture of *veratrum viride* should be added to a tumbler half full of water, and one teaspoonful given every ten or fifteen minutes, until the active inflammation is controlled. In miasmatic districts this treatment should be followed by quinine and iron.

## CHRONIC SPLENITIS.

In this disease I consider those enlargements of the spleen, which are attendant upon intermittent fever.

## SYMPTOMS, ETC.

The most important indication of this affection is an increased size of the viscus, which may sometimes be observed by the slightest examination. It causes difficulty in walking, and an inclined position in standing; also pressing upon the surrounding organs, and thus occasioning imperfect digestion, irregular action of the heart, cough, &c. It also affects the action of the liver and kidneys, and occasions a sallowness of the skin, almost amounting to a greenish hue.

This disease may continue for a few months, or its duration may extend into a long number of years; in which event the person will observe no inconvenience by its pre-

sence, unless excited to action by a severe blow, or some other outward injury.

Chronic splenitis occurring in miasmatic countries, is frequently accompanied by a vitiated constitution, with a corrupt state of the blood. When it affects the constitution the skin becomes pale, dry, and sallow; with languor, weakness, and depressed spirits; in the female, suppression of the menses, pain in the limbs, &c. The spleen, when enlarged, generally extends beyond the ribs into the region of the stomach and loins, and sometimes occupies nearly the whole abdomen. It then assumes the form of a hard, oblong tumour, rounded on the outside, and extending downward.

#### DISSECTION.

The size of the spleen is often so much increased as to weigh from ten to twenty pounds; portions of the coating of this organ may be of the character of bone or gristle, while the parenchyma presents a variety of alterations in form. In other cases, portions of the spleen will be found softened, or even converted into pus; in which event abscesses will be found in portions of the organ. In a few cases the peritoneal coat of the spleen becomes attached to a section of the stomach or bowels, where a fistulous opening is formed, and the contents of the abscess are discharged into these organs. A case occurred in my practice, where the spleen became enormously enlarged. After a protracted intermittent fever, an abscess formed, and the spleen became attached to the stomach, an opening occurred, and upwards of two quarts of pus were discharged from the stomach and bowels. Every eight or ten days this abscess would fill, and again discharge its contents into the stomach, as in the first instance. But after an energetic and somewhat protracted course of treatment, the patient recovered.

#### CAUSES.

Chronic splenitis is most commonly occasioned by intermittent fever; it may also succeed the bilious remittent

fever, or may be the result of imperfect or retarded menstruation.

#### TREATMENT.

Where the disease is not of long standing, and has occurred as the result of intermittent fever, the enlargement is usually owing to an exudation of liquor sanguinis into the parenchyma of the spleen, and may be removed by giving iodide of potassium, menispermin, and apocynin. The following compound has proved most efficient in some very obstinate cases:—

R. Apocynin.....grs. x.  
 Menispermin.....grs. xx.  
 Iodide of Potassæ.....℥j.  
 Syrupus Simplex.....℥vj.

Mix, triturate. Dose, one teaspoonful every two or three hours.

In case there is permanent enlargement of the spleen, an irritating plaster should be applied over the entire tumour, and the following compound administered:—

R. Eupatorium Purpureum.....℥ij.  
 Chimaphila Umbellata.....℥j.  
 Chionanthus Virginiana.....℥j.

Mix, pulverize. Add to one quart of boiling water, make an infusion, and give one-half teacupful every hour.

Benefit will also be derived by occasionally giving the following:—

R. Quinine.....grs. x.  
 Anti-Bilious Physic.....℥j.  
 Mix. Ft. pulv. No. x. Sig.—One every two hours.

Where the spleen is indurated, it may be relieved by the proper use of irisin, menispermin, and podophyllin. If an abscess form and open into the stomach or bowels, its evacuation may be facilitated by means of gentle emetics, or mild laxatives. The constitution should be well supported, and the diet of a nutritious character.

NON-INFLAMMATORY DISEASES OF  
THE SPLEEN.

## CONGESTION.

Congestion may be present without the appearance of inflammation. When the spleen becomes irritated, it becomes engorged with blood. The symptoms are somewhat similar to those of acute splenitis. Sometimes the spleen, by constant distention, is ruptured; when the blood, rushing into the abdomen, causes instant death. Congestion of the spleen may occur in the cold stage of fevers, or in fainting. Anything that interferes with the circulation of the blood, will also occasion congestion. Upon dissecting the spleen, we find it very much enlarged, engorged with blood, and of a dark-brown colour; and in cases where the disease has been of long standing, scars and small sacs have been met with.

This disease is not a fatal one.

## SOFTENING.

Acute inflammation will soften the spleen, but it may also lose its degree of hardness when there are no traces of inflammation. The degree of softening varies. The affection may occur in the course of various diseases, but is usually an attendant upon typhoid fever. The nature of the softening has not been thoroughly investigated, but it is apparently dependent upon a diseased condition of the blood.

## HYPERTROPHY AND ATROPHY.

The spleen may either become enlarged, or waste away without producing any change in its formation. The former may be caused by irritation. The causes of the latter are unknown, but it is thought to result from contraction of the membranous sac of the spleen.

## TUBERCLES.

These scrofulous deposits are rarely met with in the spleen, and the same may be said of cysts and hydatids. Among other affections sometimes observed in this connexion, are fatty and waxy degenerations, cancer, calculeous conerctions, melanosis, &c. When hemorrhage occurs, death is liable to follow very quickly.

## TREATMENT.

The treatment for congestion of the spleen consists in equalizing the circulation. This can usually be done by giving a warm bath, keeping the patient in a warm room, and administering small doses of aconite. If the congestion is violent, hot packs should be applied, and frequently repeated.

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## DISEASES OF THE HEART.

Previously to describing diseases of the heart, it may be well to enumerate some of the prominent points which should guide the practitioner in the diagnosis of these affections.

1. In health the cardiac dulness on percussion commences immediately below the nipple, and extends two inches across; and any increase from this extent of dulness either indicates an enlargement of the heart, or distention of the pericardium.

2. The apex of the heart is between the fifth and sixth ribs, immediately below, and a little to the inside of the left nipple.

3. Friction murmur, corresponding with the heart's movements, indicates pericardial exudation.

4. A bellows murmur, with the first sound heard loudest over the apex, indicates atrophy of the mitral valves.

5. A bellows murmur, with the sound heard loudest at the base, indicates aortic insufficiency.

6. A murmur, with the second sound loudest at the apex, indicates aortic disease, or a roughened, auricular surface of the mitral valves. A murmur, with the first sound loudest at the base, and propagated in the direction of the large arteries, indicates an altered condition of the blood, as in anæmia.

The general symptoms of diseases of the heart are those which are indicated by the irregularity of the pulse, which depends on the contraction of the left ventricle. If the parietes of this cavity contract freely, the pulse will be feeble. If it contract spasmodically, the pulse will correspond. Dyspnoea is also a frequent accompaniment of heart affections. It may depend upon nervous excitement, mechanical interference with the functions of the lungs, or an interference with the pulmonary circulation.

Pain in the heart may also indicate a diseased condition of the organ; but as this is experienced when there is no organic affection, it should be regarded as a symptom of heart disease only when there are other indications.

There are many other symptoms that may be connected with heart affections, such as dropsical deposits, hæmoptysis, &c.

For farther descriptions of symptoms of diseases of the heart, see cardiac affections in another part of the work.

#### CHRONIC VALVULAR DISEASE.

The morbid changes in the valves, or their orifices, are of common occurrence. They may be merely thickened, without any alterations in their structure. Their edges may be united so as to narrow the aperture through which the blood passes, or they may become attached to the surrounding tissue. In either case the orifice is not accurately closed. The valves may also undergo a change of structure, and be converted into fibro cartilage, or bone.



*Fungous excrescences* are sometimes formed upon the valves, thus interfering with the closure of the orifice.

*Atrophy* and *hypertrophy* also occur in the valves.

*Disease of the aortic valve* may be distinguished by the abnormal sounds heard over the site of the valves, which is upon the sternum, opposite the lower margin of the third rib. The regurgitation accompanies the diastole of the heart. The sounds of the pulmonary valves are heard about two inches up the aorta. The regurgitation of the mitral valves is loudest near the apex of the heart, and somewhat near to the right of the nipple. In diseases of the tricuspid valves the morbid sounds are heard above the apex of the heart, a little to the right, and over the sternum. In disease of these valves there is almost always a distention of the jugular veins, and a visible pulsation, which is synchronous with the murmur of the right ventricle.

#### CAUSES.

The causes of valvular difficulties of the heart, are inflammation, and diseased condition of the blood, together with long-continued nervous irritation.

#### TREATMENT.

The treatment of valvular diseases of the heart, where there are inflammatory symptoms, consists in such remedies as will control the inflammation, such as *veratrum viride*, laxative doses of *podophyllin*, counter-irritation over the heart, (by means of some chafing plaster or liniment,) and such other means as will restore the circulation, and stimulate the emunctories of the body. Where there are adhesions of the valves which interfere with their function, one or two grains of *menispermum*, with an equal quantity of *muriate of ammonia*, given two or three times a day, and persisted in for some time, will usually relieve the difficulty. If there is atrophy, or degeneration of the valves,

collinsonin is the remedy. From two to three grains should be given three or four times a day. If the degeneration should depend upon an impoverished state of the blood, as in serofulous or phthisical patients, a strong, invigorating, and tonic course should be pursued.

### LEUCOCYTHÆMIA.

When the human blood is examined under the microscope of two hundred and fifty diameters, it will be observed to be composed of two sets of small, round bodies of different colours. These are the white and red corpuseles. (See fig. 28.) The small, round bodies, which are aggregated together, and arranged in rows, are the red corpuseles; and the small bodies which are separate, and appear to be filled with granular matter, are the white ones. Fig. 29 is the

Fig. 28.



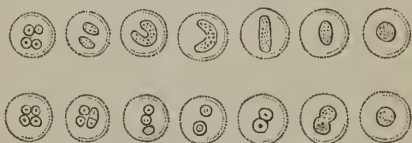
Fig. 29.



same after the addition of acetic acid. In the normal state the number of red corpuseles is very large, in comparison to those of the white, about the proportion as represented in fig. 28. In leucocythæmia the white blood-corpuseles become abundant, while the red blood-corpuseles either remain stationary, or are diminished in number. It is now generally considered by physiologists that the coloured corpuseles are formed from the colourless ones; but Mr. Bennett, in connexion with some others, is of the opinion that the coloured blood disc is merely the liberated nucleus of

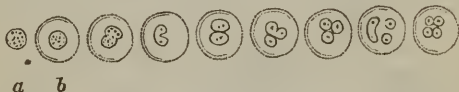
the colourless cells. Of the mode of transformation he remarks, that the colourless cells may frequently be seen, on the addition of acetic acid, to have a single round nucleus; but more commonly the nucleus is divided into two, each half having a distinct depression presenting a shadowed spot in the centre. Occasionally, before the division takes place, the nucleus becomes oval, and sometimes bent, and even of a horse-shoe form. (See fig. 30.) Fig.

FIG. 30.



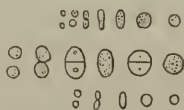
30 shows the colourless blood-cells, as observed in leucocythæmia, arranged in the order of the development of the nuclei. (See fig. 31.) Fig. 31 shows the development of

FIG. 31.



the nucleus in colourless blood-cells; *a*, as found in the lymphatic vessels; *b*, increased development. Mr. Bennett regards the formation of white blood nuclei as dependent upon the aggregation of granules in the chyle; and that in the lymphatics, or blood-glands, which consist of the spleen, thymus, lymphatics, thyroid, and supra-renal capsules, they undergo still farther development. (See fig. 32.) Fig. 32

FIG. 32.



shows the order of the development. He also claims that the liberation of the nucleus, and its transformation in the

lungs, constitutes the red corpuseles. Fig. 33 shows the nuelei of the blood-cells after the addition of acetie acid. (See fig. 33.) From this hypothesis or theory of the deve-

FIG. 33.



lopment of the formation of blood, Mr. Bennett infers that many of the most important pathological changes of that fluid depend upon a disordered condition of the blood-glands, and in leucoeythæmia his observations appear to be confirmed, as it has been shown in this disease that the blood-glands are the primary seat of the difficulty. He explains the disease by showing that when these organs are diseased the cell elements of the white blood-corpuseles circulate in the blood without undergoing transformation into red blood-corpuseles, thus producing a superabundance of white blood-cells, and a corresponding diminution of the red blood-corpuseles.

## SYMPTOMS.

This disease usually commences very slowly, frequently continuing for years previously to manifesting its fatal symptoms. The first indications of its approach are slight dyspeptic symptoms connected with disordered respiration, which frequently amounts to more or less dyspnœa. In connexion with these symptoms there is a peculiar, light-sallow complexion. As the disease advances, the spleen, liver, kidneys, and lymphatics will be found enlarged, and

otherwise disordered. These symptoms are usually followed by dropsical deposits in various organs and tissues. They generally increase, and become more malignant until death occurs.

#### TREATMENT.

The treatment for leucocythæmia has not been very successful. A case that I have at this time under the following treatment appears to be improving. He is taking chimaphilin, one dram; ferri hypo-phosphite, one-half dram; aluvin, two drams; cod liver oil, six ounces. A mixture is formed by trituration, and one teaspoonful taken every three hours during the day. In connexion with this treatment, hot friction baths are given, and the patient ordered a nutritious diet. In a few cases that I have treated, in connexion with the above remedies I have found a free lobelia emetic, administered every two or three weeks, to be of advantage.

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### ODONTALGIA, OR TOOTHACHE.

Toothache is usually produced by an inflammation of the periosteum, or of the inner structure of the tooth. It may be caused by a cold, by caries, by an inflammation of the gums, or it may be a neuralgic affection.

#### TREATMENT.

Where it is dependent upon inflammation of the gum, periosteum, pulp of the tooth, hot packs should be applied to the face, followed by a hot foot-bath, and the free use of aconite until perspiration is produced. If it is caused by caries, the cavity may be cleaned and filled with lint, moistened with aconitin and chloroform. This will usually afford temporary relief; but the only permanent relief is in killing the nerve, which can be done with the dentist's arsenical paste.

## SEA-SICKNESS.

Some persons, when riding or sailing, are liable to symptoms of vertigo, which is soon temporarily relieved by nausea and vomiting. The relief obtained, however, is usually but temporary, as it is soon followed by a renewal of the vomiting.

## TREATMENT.

Previously to exposing to the cause, the stomach and bowels should be evacuated by means of a mild dose of neutralizing mixture and anti-bilious physic. When the first symptoms appear, suck freely of fresh lemon juice. This method proves almost universally successful against sea-sickness. If it should fail, one or two drops of the essential tincture of belladonna may be taken every half hour, or hour, until relief is obtained.

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## CARDIALGIA, OR GASTRALGIA.

This disease consists of sharp, violent pains in the stomach, and is usually known as heart-burn. It is caused by the generation of gases in the stomach, or the accumulation of an excess of acid. It may also be produced by irritating ingesta.

## TREATMENT.

It can frequently be relieved by a small draught of peppermint sling, in which has been dissolved a small portion of bi-carbonate of soda. If this does not relieve the affection, a cupful of warm soda water should be drunk, and sufficient lobelia taken to produce slight emesis. If the disease should return, it should be treated according to the nature and causes upon which it depends. •

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## DISEASES OF THE NERVOUS SYSTEM.

## HYPERÆSTHESIA.

The character which these affections have in common, is exalted irritability, and increased irritation of the sensi-

tive or centripetal nerves. The expression of this irritation is either physical, one of consciousness, a sensation,—or motor, a reflex movement—or both at the same time.

The sensation varies according to the peculiar sphere of the affected nerve. Hyperæsthesia of the cutaneous nerves is manifested by pain in its various modifications; that of the nerves of special sense by phantasms. The part taken by the brain as the psychical organ, in sensation, is not only receptive, but also re-active. If the imagination dwell upon the sensation, the latter becomes more intense and more defined; the power of imagination may create sensations, as proved by the feeling of nausea or prurigo, and a morbid condition termed hypochondriasis. Dreaming and insanity differ from unfettered consciousness, in their interpretation of centripetal action, by an absence or estrangement of self in the perception of sensations; evidence of this is presented to us in nightmare and hallucinations.

The second manifestation of exalted irritability of the centripetal nerve takes place by reflex action upon the motor apparatus; in which case sensation may be absent, or it may continue. In the former case the absence of accompanying sensation increases the difficulty of forming a correct judgment, but we may satisfy ourselves of the real character of the affection by observing that the gentlest irritation of centripetal nerves, which in ordinary conditions would produce no effect, at once rouses re-action amounting to violent spasmodic action, such as we see in poisoning by strychnine, in tetanus, or hydrophobia. The combination of sensation and reflex action, as often exhibited in hyperæsthesia, of the cerebro-spinal, and more particularly in the sympathetic system, allows of a more easy interpretation. Thus in ciliary neuralgia, or photophobia, the eyelids are closed by reflex action, communicated by the sensitive fibres of the trigeminus to the motor fibres of the facial nerve. In sciatica, pain occurs in combination with cramps in the calves and



spasmodic action of the leg. In the case of prosopalgia, with neuralgia of the tongue, which will be detailed in a future chapter, reflex action was communicated to the hypoglossus, and in consequence of this the tongue was thrown about. Numerous instances present themselves, in connexion with hyperæsthesia of the sympathetic. Under this head I class disturbance of the rythm of the heart's action from cardiac neuralgia, intestinal spasm, and ischuria accompanying mesenteric neuralgia. Nor is it only in the muscular tissue that hyperæsthesia is manifested by reflex action,—the same is the case in other contractile tissues,—but it is a subject to which hitherto little attention has been devoted. Thus it may show itself in the skin; for it is not unusual for the hair in hemicrania to be elevated at certain painful parts. A farther relation between hyperæsthesia and motor action is exhibited in the aura epileptica; phantasms, vertigo, and especially abnormal sensations of a current of air, or more frequently of tearing, dragging pains, which mount up from some point of the trunk or extremities to the head or adjoining parts, where they seem to be cut off, and are immediately followed by spasms. Epileptic attacks most frequently, and not unfrequently hysterical paroxysms, are introduced in this manner. Even tetanic and hydrophobic spasm occasionally commences with an aura at the seat of injury. In hyperæsthesia we find that not only the irritation is increased, but that also the irritability of the nerves of sensation generally is exalted, both during the paroxysms as well as in the intervals. During the paroxysms it shows itself by the extent of the sympathetic action, such as takes place, for instance, in the hyperæsthesia of the sympathetic nerve, and in hysterical affections. In the intervals it manifests itself partly by a derangement of sensibility, as in tenderness or numbness of the neuralgic parts, partly by the abnormal re-action to external stimuli, or to irritation pro-

ceeding from the organism. Thus neuralgic patients exhibit an unusual sensitiveness to atmospheric influences of an electric or hygrometric character, whose approach they are thus able to foretell. Hugh Ley has made the observation that leech-bites induce erythema and ulcers in the skin of neuralgic subjects. I may also quote, in proof of my position, the trifling nature of the cause which occasionally gives rise to the paroxysms, and the contrast in the effects produced by these causes in different individuals. It is this exalted sensibility, upon which the change in the relations of the organism in hyperæsthesia depends, that distinguishes morbid processes from mere physiological activity of a stimulated nerve. Our acquaintance with these phenomena is not as yet sufficiently extensive, but their study will be advanced by accurate observations of the free intervals occurring between the paroxysms.

If we turn from the physiological to the nosological features of hyperæsthesia, we observe that the following characters are applicable to the entire class:—1. Periodicity, the alternation of paroxysms and intermissions. 2. Uniformity and persistence of the symptoms, however long the duration of the disease. 3. Absence of danger to life. 4. Freedom of early life from the disease.

#### HYPERÆSTHESIA OF THE CUTANEOUS NERVES.

The expression of this variety of hyperæsthesia consists in a sense of pain, itching, formication, and heat; pain is the most frequent symptom, and for this reason the term *neuralgia* has been used to designate it. These sensations come on in paroxysms, and are confined to the distribution of one or more cutaneous nerves—of one, or occasionally of both sides of the body.

Injuries of the nerves may serve as types of this affection, because they may, as surgical operations generally, be looked upon in the light of experiments which afford a more distinct interpretation of simple conditions.

Neuralgia from injury of a nerve may be known by the pain commencing at a definite point in the course of a nerve, by its distribution to the peripheral terminations of the nerve, by excitement or exaltation of the pain by the slightest touch of the injured part, and by cessation of pain when compression is applied above the seat of injury. Sooner or later sympathies in other nerves, not only in the vicinity, but also at a distance from the original seat, show themselves; and if the pain continue for a long time, a constitutional disease is developed.

Punctured wounds, cuts, bruises, and foreign bodies are the most frequent causes. The pain occurs in paroxysms, and is produced or increased by change of weather, affections of the mind, and errors in diet.

The purest form of neuralgia is seen when the injury affects very sensitive nerves, such as the sub-cutaneous nerves; becomes blended with symptoms of a motor character, when those causes are seated in a nerve containing sensitive and motor fibres.

#### NEURALGIA ISCHIATICA.

The chief feature of this malady is pain in the distribution of the cutaneous branches of the sciatic nerves; it varies according to the seat and number of branches affected. If the posterior, middle, or lower cutaneous nerves, as often happens, are the seat of neuralgia, the posterior or lateral surface of the thigh is the suffering part, the pain extending to the popliteal space and the calf of the leg. The superficial branch of the calf of the peroneal nerve is less frequently affected; in this case the pain extends down the external and anterior surface of the leg, and along the external and inner half of the dorsal surface of the foot. The long cutaneous branch of the tibial nerve is more often involved, the pain then shows itself at the external malleolus and the outer edge of the foot. The plantar nerves are

rarely affected, excepting the external tibial nerve, which supplies the heel.

The pain darts through these parts with the rapidity of lightning, up and down, cutting, tearing, and burning, with extreme violence, increased by slight contact, or gradually becoming permanent with a gouging or crushing character. At the same time the patient often complains of an oppressive, painful sensation in the vicinity of the tuberosity of the ischium, not far from the seat of the sciatic nerve, and of pains in the sacrum. At times the sciatic pain rivals that of facial neuralgia. Lentin mentions a patient in whom the ball of the right foot was the seat of pain; a slip of paper falling upon the ball, though covered with the stocking, excited the pain for several hours. The pain is most violent in plantar neuralgia, of which I have lately seen an instance in a woman of fifty-four years of age; her sufferings quite equalled those of *tic douloureux*. Hugh Ley quotes two similar cases; and Descot communicates one observed by Richerand, in which the application of the actual cautery to the sole of the foot proved effectual. The latest edition of Bell's works contains a case in which agonizing pains occurred in the sole of the foot, against which the most powerful remedies were of no avail. Bell examined the patient a few days before his death, and discovered a hard tumour in the popliteal space lying in the tibial nerve, and originating in external injury. In addition to the cutaneous pain, the patients frequently complain of other abdominal sensations, such as a sense of cold, heat, itching, horripilation, or cold affusion.

Sciatica occurs in paroxysms varying in duration, with a remittent, but rarely with an intermittent type. At the commencement of the disease they are more crowded together, later they are separated by longer intervals. The attacks occur towards evening, and at the beginning of night; the intermissions occur in the morning hours. There

is frequently a persistent dull pain, or numbness, in the intervals, with tenderness on pressure, especially at those parts where the skin immediately invests the bone, as at the knee, the head of the fibula, or the ankle.

#### CERVICAL AND INTERCOSTAL NEURALGIA.

The lower cervical nerves bear to neuralgia of the arm a similar relation to that existing between the upper, (especially the second and third, from which the occipital nerves branch off,) and neuralgia of the posterior surface of the head. The pain extends from the upper cervical vertebræ to the vertex, the external ear, and the mastoid process; occasionally it remains limited to a few small spots, but may be complicated with painful sensations in the face, or of the lower jaw, if the upper cutaneous nerves of the neck are affected. The pain occurs by jerks and starts, as in other neuralgic affections, both while the head is at rest and during its movements, which the patients avoid during the attack.

#### ARDOR AND ALGOR.

The perception of physical warmth is also conducted by the cutaneous nerves of sensation. This power does not, according to Bell's observation, appertain to the sensory nerves of the muscles; for when these are exposed in surgical operations they exhibit sensitiveness on the application of hot or cold water, but are stated to be incapable of appreciating a change of temperature. It follows that ardor and algor occur as cutaneous hyperæsthesiæ; they are manifested by a sense of heat and cold, which does not correspond with the indications of the thermometer.

A common form is ardor volaticus s. fugax; it is characterized by a hot flush passing over the forehead and chest, especially the face, and occasionally accompanied by the appearance of a thin perspiration. After a few minutes this phenomenon disappears as rapidly as it appeared. I

have generally met with it in females about the climacteric period, and after the cessation of the catamenia; it is associated with mental excitement and great restlessness; and though it often obstinately resists all the remedies tried, it may, after a few years, yield of its own accord.

The chilliness accompanying the numbness of the limbs forms a contrast with the hyperæsthesia just spoken of; I shall advert more fully to it in the chapter treating of anæsthesia, as well as of the sensation of cold confined to a small spot, *algor circumscriptus*. The individuals are almost always females with an hysterical diathesis. The symptom generally occurs on the scalp, and occasionally on the skin of the abdomen; it appears in paroxysms, and again vanishes, together with the other hysterical symptoms. I shall speak of the aura as the forerunner of epileptic attacks when I examine into the nature of this disease.

#### VERTIGO.

The sensation of illusory movement generally attacks the individual suddenly, and without premonitory symptoms; consciousness is unaffected, and it is referred by him, either to himself or to surrounding objects. He feels as if he were going to fall, or were turning round, or as if every thing else were doing so.

This sensation is invariably preceded, accompanied, or followed by another symptom, the sense of disturbed balance.

Those patients who complain of the illusory movement and the disturbed balance, prove by doing so, that their consciousness is unaffected; accordingly, the will continues to be active. They try to secure themselves against the abnormal sensation, which threatens to carry the body away with it, by means of movements which require some force for their execution, as by stretching out their arms, by planting the feet firmly, or by pressing the trunk against a support.



Among the causes of vertigo, the state of the blood occupies an important position, and we find that both an increase and diminution in the supply of blood are followed by vertigo. Thus it commonly accompanies diseases of the heart, and especially hypertrophy of the left ventricle. On the one hand, we find vertigo induced by suppressed hemorrhoids, menstruation, epistaxis, or the omission of habitual extraction of blood; on the other, hemorrhages, whether undeveloped or intermittent, arthritis, or trichoma, pregnancy, and the pressure of tumours in the abdomen, are to be classed in this category; not unfrequently the affection is caused by injury and diseases of the brain, and especially of the cerebellum, or by epilepsy, for the paroxysms of which vertigo is not unfrequently substituted.

#### HYPERÆSTHESIA OF THE OPTIC NERVE.

Hyperæsthesia of the Optic Nerve is manifested by luminous and chromatic sensations. It is usually preceded by headache, a sense of tension in the eyes, loss of appetite, and general debility. It generally runs a chronic course, and is usually produced by congestion of the brain, optic nerve, and structure of the eye.

#### ACOUSTIC HYPERÆSTHESIA.

Increased sensibility of the auditory nerve is characterized by tinnitus aurium, melodious chants, or noises resembling the human voice or the cries of animals. These sensations of sound occur whether the ear be open or closed. This affection of the nerve may be produced by violent explosions, continued loud noises, diseases of the brain, and inflammation of the nerve.

#### OLFACTORY HYPERÆSTHESIA.

Olfactory Hyperæsthesia is recognised by an increased sense of smell.

#### GUSTATORY HYPERÆSTHESIA

is an increased sensibility of the nerves of taste.



## HYPERÆSTHESIA OF THE CARDIAC PLEXUS.

Hyperæsthesia of the Cardiac Plexus is recognised as Angina Pectoris, which is described in another portion of the work.

## HYPERÆSTHESIA OF THE SOLAR PLEXUS.

Hyperæsthesia of the Solar Plexus is recognised by violent, contracting pains at the pit of the stomach. It is usually preceded by a sense of oppression. The hands and feet are cold, and the pulse feeble. The stomach is usually distended, and tender on pressure. It occurs in paroxysms, and lasts only a few minutes.

## HYPERÆSTHESIA OF THE MESENTERIC PLEXUS.

Hyperæsthesia of the Mesenteric Plexus is characterized by sharp, twisting pain, extending from the umbilicus to the lower portion of the abdomen. It occurs in paroxysms, and is of a most excruciating character. The patient is restless,—hands, feet, and cheeks are cold, the pulse is small and hard. The abdomen is tense and distended; obstinate constipation, and usually nausea and vomiting occur. The fits usually last from a few minutes to several hours. This disease is generally recognised as colic; and when connected with vomiting of bilious matter, it has been denominated bilious colic, and has been mistaken for inflammation of the bowels. It is a pure neuralgic affection, and amenable to the same treatment as hyperæsthesia in other parts of the body.

Hyperæsthesia of the spermatic plexus, and other nerve ganglia, and sections or portions of the nervous system, may occur. In short, all portions of the nervous system, including the brain, spine, and entire sensitive nervous system, may become subject to hyperæsthesia, or increased nervous sensibility; and, when attacked with this disease, manifest the same general symptoms. All the forms of hyperæsthesia,

including the complicated varieties of neuralgia, may be distinguished from inflammatory diseases by their peculiar periodicity, and the systematic order in which the paroxysms of pain are repeated.

#### CAUSES OF HYPERÆSTHESIA.

Hyperæsthesia may be produced by specific poisons introduced into the blood, such as lead, mercury, arsenic, and all the poisonous minerals; it may also be produced by scrofulous or tuberculous diseases, by a debilitated state of the fluids, by local irritants, long-continued nervous excitement, zymotic and vegetable miasms, together with other agents which irritate, debilitate, and exhaust the nervous system.

#### TREATMENT.

The treatment of hyperæsthesia may be divided into palliative and radical. The palliative treatment consists in the administration of anæsthetics, such as chloroform, sulphuric ether, aconitin, hyosciamin, cypripedin, belladonna, cannabis indica, cannabis sativa, opium, morphine, lupulin, cicuta, and other anæsthetics. These remedies may be applied either locally, or introduced into the system internally. When taken into the stomach they reach the nerves through the medium of the blood; when applied externally, they may come directly in contact with the nervous tissue. In either case their influence is the same. Among the most potent anæsthetic agents, are chloroform, sulphuric ether, aconitin, and the opiates. A most valuable anæsthetic for external applications, in case of active neuralgia, is the following:—

R. Chloroform .....	ʒij.
Aconitin.....	grs. ij.
Sulphate of Morphine.....	grs. x.

Mix, and apply to the part by means of a little lint, or a small pad of cotton. Another very valuable preparation is

to take ten grains of aconitin, and ten of the extract of belladonna. Form an ointment with one dram of lard. Let this be applied to the affected part with friction. Any of the above remedies may be introduced into the system, in proper doses, and at sufficient intervals to subdue the pain. After the pain is controlled with anæsthetics, antiperiodics should be given to interrupt the periodicity of the disease. For this purpose the following will be found most valuable:—

R. Quinine.....grs. x.  
 Prussiate of Iron.....ʒss.  
 Lupulin.....grs. xx.

Mix. Ft. pulv. No. xx. Sig.—One every two hours.

As soon as this antiperiodic has been taken, the cause of the disease should be sought, and, if possible, removed. If the paroxysms should return during the radical treatment, the pain should be again subdued with anæsthetics, and the periodicity of the disease with antiperiodics, when the radical treatment should be persevered in until the disease is permanently cured. During the treatment the body should be frequently bathed, a nutritious diet prescribed, and every practical means resorted to for the purpose of invigorating and strengthening the system.

#### ANÆSTHESIA.

By Anæsthesia is understood loss of the energy of the sensory nerves.

#### ANÆSTHESIA OF THE CUTANEOUS NERVES.

The characteristic symptom of this variety of anæsthesia, is diminution or loss of the normal sense of the skin, in its simple or modified condition. Cutaneous anæsthesia gives rise to a diminution, or a loss of the sense of warmth and cold, as well as of tactile sensation. English physicians have published a few accurate observations on the change of the sense of temperature in anæsthesia. In one case, in which anæsthesia had affected the feet half up the calves,

and the hands, the patient experienced no feeling of temperature when brought into contact with solid bodies, not even if ice were applied; water at every temperature appeared lukewarm. Another patient, himself a physician, (Dr. Vieusseux, of Geneva,) whose right side was anæsthetic, called hot things that were applied to it cold, or lukewarm, and cold things hot. When lying in a cold bed, it seemed hot to the right side, and cold to the left. In a hot bath the water appeared hot to the left side, and neither hot nor cold to the right. Very cold water produced a sense of warmth to the right side. If he touched a substance which was neither hard nor polished, such as the hand of a friend, he was unable to determine its temperature, and he was forced to call in the aid of the left hand.

#### ANÆSTHESIA OF THE NERVES OF SPECIAL SENSE.

##### AMAUROSIS, (GUTTA SERENA.)

The individual affected with it sees objects indistinctly, even when they are lit up by a bright light; they appear surrounded by a fog or mist, and no effort nor the employment of artificial means increases the distinctness. The outlines of objects appear not only indistinct, but also broken, and thus disfigured. The flame of the candle appears rent; while reading, the patient misses single syllables, words, and lines, and he is forced to follow them by moving his eye, his head, or his entire body. At times the upper or lower, the right or left half, the circumference or centre of the object only is seen; at others the loss of vision is still more partial, and is confined to different spots of small extent, and with differently shaped outlines. Instances also occur in which the object only is seen, when it bears a definite relation to the eye, and it vanishes on the slightest movement of the eye or head. The faculty of distinguishing colour is often lost.

When the disease is at this stage, it is termed *amblyopia*; when vision is entirely lost, it is called *amaurosis*.

An attack of amaurosis is often preceded by phenomena of optic hyperæsthesia, (photopsia, chromatopsia,) which, in many cases, accompanies the disease when completely developed.

Among the causes predisposing to optical anæsthesia, we have to enumerate hereditary taint, the middle period of life, in the female sex the climacteric, and the development of pigment; amaurosis is rare in gray and blue eyes, as compared with the liability of dark irides. Among the specific substances which suppress the activity both of the ciliary and the optic nerves, I must mention belladonna and hyosciamus. Lead poisoning, especially by an atmosphere filled with lead dust, occasionally gives rise to amaurosis, either in combination with other nervous affections that precede or are associated with it, such as colic or saturnine epilepsy, or, though rarely, by itself. It generally supervenes suddenly, runs a rapid course, lasting only a few hours or days; or in exceptional cases, extending over a longer period. Both eyes suffer at the same time, and in an equal or different degree. The pupil is dilated, unequal, variable. Tanquerel des Planches has observed twelve cases of the affection.

#### ACOUSTIC ANÆSTHESIA.

This anæsthesia may be defined as the absence or loss of the power of the acoustic nerve to perceive impulses of solid bodies, or vibrations of the air, as sound, owing to a diminution or loss of the conducting power, or excitability of the acoustic nerve.

In acoustic anæsthesia the loss of hearing generally commences in one ear, gradually and almost imperceptibly; it rarely affects both organs at the same time. At first distant sounds only are indistinctly perceived. There is a difficulty in following a general and animated conversation, the sounds

becoming confused. After a time the opposite ear suffers, and the deafness increases. Sooner or later tinnitus aurium supervenes. It is at first indistinct; but as the disease increases, becomes loud and sonorous. This noise not unfrequently extends from the ear to the entire head. Certain circumstances exert an undoubted influence upon the improvement or increase of the affection. It is augmented by mental fatigue, depressing emotions, by damp, stormy, or cold weather, or debilitating discharges; while light-heartedness, a hopeful frame of mind, and a dry, mild atmosphere relieve the patient, though but temporarily. The same applies to loud noises in the vicinity, driving in a rattling carriage, the ringing of a bell, the beating of a drum, &c. Anæsthesia of the acoustic nerve either remains permanently at this stage, or complete deafness ensues, to such an extent that hearing can no longer be excited by any stimulant. In this case the tinnitus generally ceases.

The *causes* of deafness must be divided into such as destroy the conducting power of the peripheral, or of the central tract of the auditory nerve. Among the former we must enumerate sudden, violent concussions of the acoustic nerve, by loud explosions, thunder, &c., or by concussion of the cranial bones, (or by a vigorous box on the ear,) injury or laceration accompanying fractures of the cranium, compression by tumours seated in the petrous bone, and at the base of the brain. Among the central causes, disorganization of the brain is the most frequent, whether idiopathic, or resulting from destruction of the petrous bone by osseous tubercle. In the cases that have hitherto been placed on record, the cerebellum, though not exclusively affected, has generally been found to be the seat of the disease, together with the scrotum.

#### ANÆSTHESIA GUSTATORIA, (AGEUSTIA.)

What I include under the above term is the loss of taste, owing to the conducting power of the nerve of taste having



been destroyed. This distinguishes the affection from an impairment of the sense of taste, resulting from conditions which prevent the action of a rapid substance upon the nerves, as dryness of the tongue.

## TREATMENT.

The general treatment in anæsthetic diseases consists in removing the cause or causes of the difficulty, so far as practicable, in toning and invigorating the system generally, and in the use of anti-anæsthetic agents. Among the most reliable anti-anæsthetic remedies, are *nux vomica* and its preparations, *ignatia*, *viburnin*, and *rhus radicans*. In cases of anæsthesia of the optic nerve, I have found the following prescription most valuable:—

R. *Viburnin* .....grs. x.  
     Iron by Hydrogen..... .grs. xx.  
     *Sacch. Alba* .....℥j.

Mix. Ft. pulv. No. xij. Sig.—One every two hours.

At the same time let the patient take from three to five drops of the acetic tincture of *rhus radicans* four or five times a day. During the interval between the administration of these remedies, *hydrastin*, *iron*, and *quinine*, with cod liver oil, should be given for the purpose of invigorating the general system. In hyperæsthesia of the auditory nerve, *nux vomica* frequently serves the most valuable purpose. The following prescription may be used:—

R. Essential Tincture of *Nux Vomica*.....℥j.  
     *Ferri Hypo-Phosphite*.....℥ij.  
     *Syrupus Simplex*.....℥vj.

Mix. Sig.—One teaspoonful three or four times a day.

The ear should be frequently syringed with warm water, for the purpose of removing all foreign substances, dry wax, &c.; and the peripheral nerves may be stimulated by rubbing around the ear with a liniment, composed of the equal parts of *myrrh*, *capsicum*, and *nux vomica*. In some



cases of anæsthesia, much benefit may be derived from dry friction, or a gentle current of electricity. The constitutional treatment should be such as would produce a normal condition of the emunctories generally.

#### NEUROSES OF MOBILITY.

A Neurosis of Mobility is that vital process in which the activity of the centrifugal nerve, owing to a change in its excitability, deviates from the normal condition.

The activity of the centrifugal (motor) nerve, is manifested by the contraction of the muscular fibres supplied by it; and this manifestation, when abnormal, may be exalted, or depressed, and extinguished. In the former case we have to do with *hypercinesis*; in the latter, *acinesis*.

Consequently, there are two organic elements, the motor nerve, and the contractile fibre, whose mutual action is necessary, and to both of which we must pay special attention. The integrity of the muscular fibre is an essential condition of contraction; the nerve loses all power as soon as the muscular tissue has undergone alteration, though only of a microscopic character; the contractile tissue and the inner coat of the vessels, though dependent upon nervous stimulation, play a subordinate part in the theory of these neuroses.

The antagonism, the balance, and the co-ordination of movements depend upon this. The unsymmetrical, but harmonious movements of seeing eyes afford a proof that, notwithstanding the existence of symmetrical nerves and muscles, the movements are guided by an equilibrium dependent upon sensual impressions.

#### HYPERCINESIS, (SPASMS.)

The character common to this class of affections is, exalted irritability, and increased action of the motor nerve.

This activity is evidenced by muscular contraction oc-

curring with quick changes, or enduring, as clonic or tonic spasm; the latter does not, however, originate in a persistent influence exerted upon the motor nerves, but as Edward Weber's experiments with the rotary apparatus have shown, in a succession of shocks communicated to the motor nerves. He states that if the galvanic shocks, communicated to a muscle or its nerve, be repeated so rapidly that the contractions which ensue, in spite of their short duration, follow one another in such immediate succession, that the succeeding one commences before the preceding one has ceased, the contraction of the muscles becomes persistent, and so perfectly continuous, that even with the microscope we are unable to perceive the movements and tumours of individual muscular fibres.

The muscles of animal life, which are under the dominion of the cerebro-spinal nerves, and the muscles of organic life which are controlled by the sympathetic system, exhibit the peculiar type of their movements in the spasmodic contractions not less than in the healthy movements; and in the former we see the muscular fibre at the same time uniformly and contracted throughout its extent, while in the latter we find successive contractions in wavelike progression. Although, however, the fundamental type is preserved, we meet with deviations in duration and locality; in spasmodic action of the heart the ventricles contract several times before a contraction of the auricles takes place, and the rhythm of the contraction itself is irregular.

The cycle of spasmodic labour-pain is different from that occurring in normal labour; the pain attains its climax suddenly, at which it remains for a considerable time, and then subsides quickly. The contraction of the uterus is effected partially and irregularly. In intestinal spasms the waves of the movement very often recede, and cause anti-peristaltic action. The organs possessed of a sphincter are not unfrequently attacked with spasms, in which the normal antagonism to their contractions is removed; thus we find

a desire to micturate in combination with ischuria, and tenesmus associated with a desire for defecation.

#### CAUSES.

1st. Spasms resulting from irritation of the motor nerves, as conductors. 2d. Spasms from irritation of the central organs, the sympathetic ganglia and plexuses, the spinal cord and the brain.

We possess but few observations on the alterations occurring in muscles in consequence of spasm. Bowman is the first who has investigated the subject accurately. He found some muscles in tetanus perfectly healthy, whilst others presented a peculiar pale-gray appearance in many parts, like the flesh of fish, doubtless owing to the blood having been squeezed out of the vessels. In other parts, again, they had almost lost their fine filamentous structure, and presented a soft, spotted mass, which easily tore, or retained the print of the finger. Extensive ecchymoses were frequently met with, which contrasted with the pallor of adjoining parts.

#### SPASM IN THE RANGE OF THE MOTOR NERVES OF THE INFERIOR EXTREMITIES.

The seat and cause of the affection induce various modifications in the phenomena accompanying it.

Among the muscular nerves of the thigh, the branches of the first and second lumbar nerves, which are distributed to the flexors, the psoas and iliacus, are the more frequent seat of the spasm, and cause the spasmodic contraction of the hip, the diagnosis of which disease has been determined by Stromeyer's investigation. The extremity is bent at the hip-joint, and is incapable of being extended. Attempts at extension excite violent pains in the knee. The tendons of the psoas and iliacus, and the muscles themselves, project in dense ridges; touching them increases the pain in the knee. The hip is drawn up by the action of the qua-

dratus lumborum and the abdominal muscles, so as to induce an apparent shortening of the extremity, from the tip to the affected foot, only touching the ground in walking.

#### TREATMENT.

The treatment of spasms may be divided into radical and palliative. The radical treatment consists in ascertaining the cause, and introducing such general or local treatment as to remove it. The palliative treatment consists in the administration of anti-spasmodics, among the most reliable of which we find the following:—gelsemin, lobelia, valerian, castor, scutellarin, cypripedin, musk, veratrum viride, and camphor. To relieve the spasms, these remedies may be given either alone, or in such combinations as the nature and circumstances of the case may indicate. The spasms of children may be relieved by an injection of the tincture of lobelia, and a warm bath. In adults, where it can be accomplished, gelsemin and lobelia should be introduced into the stomach. In cases of permanent hypercinesis, as epilepsy and chorea, they should be treated as directed under the head of those diseases.

#### ACINESIS, (PARALYSIS.)

The definition of Paralysis is, weakness or cessation of the muscular contraction, by diminution or loss of the conducting power or stimulation of the motor nerve.

This gives us the means of distinguishing paralysis from every other immobility of the muscle, with which it is often confounded. I shall not enter into a consideration of that variety of immobility which arises from disorganization of the muscular and fibrous tissue, and from other morbid processes; but I deem it necessary to dwell upon those varieties of immobility which originate in an absence of the normal stimuli of the muscular fibre.

Among the symptoms of paralysis, those manifested in the muscular and contractile tissue generally are the most

marked. The loss of all tension in contractile fibres is most conspicuous in the paralysis of the facial nerves. In one case I found that all the furrows of the affected half of the face and forehead had disappeared within ten minutes after the malady had supervened. The skin becomes flabby and faded, the cheek is pendulous, and when an attempt is made to blow, is distended more easily than the healthy cheek. In an unmarried female, who was paralytic, I found that the abdominal parietes hung down like an empty bag. There is another symptom of muscular paralysis, which we should meet with more frequently if we did not neglect to examine the naked body, and which I have seen in several instances; I allude to the oscillation of the muscular fasciculi, similar to the play of the voluntary muscles in animals whose spinal cord has been destroyed. Not less characteristic than the arrest of movement in the paralyzed muscle is the contraction of its antagonist, or of the symmetrical muscle of the healthy side; paralysis of the facial muscle, of the muscular nerves of the eye, of the nerves of the respiratory muscles of the trunk, and of the nerves of the extremities, afford sufficient examples of this. Distortions and disfigurements result, which often at first sight indicate the seat of the paralysis, and offer a point of physiological interest, by giving a proof that even in a state of repose a constant current of the motor power passes from the central apparatus to the muscles by nervous conduction, and that the symmetrical balance must be looked upon as one of those adaptations by which the manifestation of those otherwise visible and sensible movements is prevented. We not unfrequently meet with contractions in the paralyzed muscles, whether of a permanent or temporary character.

The causes of paralysis are only partially known. Every period of life is liable to them, from the fœtus to the last stage of existence. There is a congenital, and a connate

form of paralysis; of the latter we have an instance in the histrionic paralysis caused by pressure on the forceps. During the period of dentition paralysis occurs frequently, both in the lower extremities and in individual limbs, whether convulsions have preceded or not, and they may persist during the whole term of life. Infancy and advanced age are more subject to cerebral, the middle period to spinal palsies. To the latter, especially in the shape of tabes dorsalis, the male sex are much more obnoxious than the female. An hereditary tendency is observed less frequently in paralysis than in other nervous diseases. Paralyzes differ from convulsions in their etiological relations by being less frequently based upon anæmia, whilst the continuance of a stronger current to the central organs affords an etiological moment of consequence. It is thus that hypertrophy of the left ventricle favours the origin of cerebral paralysis in itself, and not only by the cerebral hemorrhage it may induce. A change in the constitution of the blood is more rarely followed by paralysis than by spasms. Lead, arsenic, woorari, and tobacco, are substances endued with a specific paralyzing power. Among the pathological processes the rheumatic is the most productive of paralytic affections; and it frequently occupies the first position, both in regard to its immediate and its consecutive effects. The interruption and suppression of the cutaneous secretion, by a draught or from getting wet, either paralyze instantaneously or gradually. Instances of the former mode of action are presented to us in facial paralysis, or paralytic aphonia; suppression of the copious and peculiar perspiration of the feet, less frequently of the palms of the hands, to which many individuals are liable, affords examples of the latter. In the latter cases there is not so much a metastatic process, as the older school assumed, as a coincident affection of the motor and sensitive nerves, a change in their condition of excitement which gradually re-acts upon the central organs.

Rheumatism is also of importance in connexion with pa-



ralytic affections, by the secondary alterations produced in the fibrous tissues, along and through which motor nerves take their course. The internal periosteum of the cranium, the dura mater, plays an important part in this way, it being either primarily affected, or secondarily to a similar malady of the perieranium; it acquires a still farther importance by accompanying the cranial nerves.

Rheumatic exudation within the sheaths of the nerves, though often spoken of, has not hitherto been met with in the dead subject. The exudation of the cellular tissue of the skin, which Froriep terms a rheumatic node, and which he states to be accurately limited to the distribution of a nervous branch, or an entire nervous trunk, has not been confirmed by cadaveric investigation, nor have I met with it during life, although numerous cases of faeial paralysis from rheumatism have come under my notice. Syphilitic and serofulous processes induce paralysis, by their influence upon the osseous and membranous envelopes, by producing morbid growths, and by causing tumefaction of the glands lying in the vicinity of nerves.

#### TREATMENT.

The treatment for paralysis does not, in many respects, essentially differ from that of anæsthesia, with the exception that the nervous system is usually more involved, and the blood more generally disorganized. The specific remedies for the treatment of paralysis are the same as those enumerated under the head of anæsthesia. For paraplexia, or hemiplegia, in addition to the treatment that I have given in another part of the work, where the disease is dependant upon an affection of the spine, an irritating plaster should be placed over the diseased part, and remain until a free discharge is produced. The plaster should be removed and re-applied every eight or ten days, for five or six weeks. During the application of the plaster, and the administration of the anti-anæsthetic agents, the blood should be tho-



roughly enriched by means of tonics, such as alnui, hydrastin, iron, cod liver oil, and a nutritious diet; and the nervous system thoroughly invigorated by means of cypripedin, hypo-phosphite of iron, soda, and lime. Baths, friction, and cheerful company, have also a most beneficial influence in diseases of the nervous system.

#### MYALGIA.

There are but few subjects connected with medicine that have been so imperfectly studied as diseases of the muscles. These important organs of locomotion constitute a large bulk of the soft tissues of the body, and perform a most important function, and, like other tissues, are subject to important changes, especially during active excitement. There are but few who have not experienced the fatigue and soreness of muscles in various parts of the body. For instance, a man takes a long walk, and overtaxes the muscles of the legs and hips. He experiences fatigue, and in some cases severe pain, which he attributes to rheumatism or neuralgia, when the truth is, that this lameness and fatigue are produced by a disordered condition of the muscles. Females, who are not in the habit of sweeping, after exercising with the broom for a short time, experience soreness and pain in the muscles of the arm, breast, and back. This is especially the case if the patient be of a scrofulous or phthisical habit. Mechanics, of feeble muscular development, are liable to attacks of myalgia in the muscles constantly exercised; and in some instances the pain becomes so severe and harassing, that it disqualifies them for their business. If they apply to a physician, their disease is pronounced rheumatism, and they are subjected to a course of drastic and debilitating treatment, which invariably renders their condition worse. There are but few physicians of experience who have not encountered numerous cases of this kind. The pain in the shoulders, so frequently attributed to diseases of the liver, as well as the lumbago, or pain in the back, which is supposed to

depend upon prolapsus uteri and other female disorders, is nothing but pain produced by fatigue and the exhausted state of these muscles.

#### P A T H O L O G Y .

Upon examining the minute structure of muscles, by means of a microscope, after violent exercise, many of the fibres will be found ruptured, the muscular striæ separated, the capillaries ruptured, and the blood extravasated into their substance.

#### S Y M P T O M S .

The symptoms of myalgia are heavy, aching pains experienced in various portions of the body. These pains are always aggravated upon exercising the muscles, and subside, to a greater or less extent, after rest. There are usually but few constitutional symptoms outside of a sensation of languor, lassitude, and general debility.

#### D I A G N O S I S .

The diseases with which myalgia is liable to be confounded, are rheumatism and neuralgia. From the former it may be distinguished by its being confined especially to the muscles, whilst rheumatism is a disease of the serous tissues of the joints. From the latter it may be distinguished by the persistent character of the pain, whilst neuralgia always occurs in paroxysms.

#### T R E A T M E N T .

The treatment of myalgia consists in rest of the muscles, and such tonic remedies as are known to give strength and power to these organs. A patient afflicted with myalgia of the back, shoulders, breast, abdomen, or limbs, should be ordered to avoid all exercise which tends to fatigue the muscles diseased, and as often as every hour recline upon a sofa, bed, or lounge, for ten or fifteen minutes, for the purpose of giving these organs rest. At the same time

hydrastin and iron should be administered internally, and the painful muscle frequently bathed in pure alcohol. There is no remedy in the *materia medica* which exerts so powerful an influence over the muscles as does hydrastin. It gives tone, vigour, elasticity, and strength to these organs, in a most remarkable degree. My plan of administering this remedy consists in triturating one dram of hydrastin with one dram of iron by hydrogen, making twenty powders, and giving one three or four times a day. If the myalgia is dependent upon a scrofulous or tuberculous habit, as it frequently is, in addition to the treatment for myalgia, the patient should be treated as directed under the head of these respective diseases.

Young females, about the age of puberty, are frequently subject to myalgic pains, especially in the back, abdomen, and limbs, which are frequently mistaken for symptoms of the return of the catamenia. Such cases are easily cured by rest, nutritious diet, iron, and hydrastin. I have also frequently seen confirmed cases of constipation of the bowels, and dyspepsia, dependent upon a weak state of the muscles of the intestines and stomach, and have cured them with iron and hydrastin, when all other means have failed. A lady, who was recently under my treatment, was subject to violent spasms of coughing, after taking exercise. Antispasmodics and anæsthetics only afforded temporary relief. Judging the case to be myalgia of the respiratory muscles, I ordered bathing the chest with alcohol two or three times a day, frequent rest, and the liberal use of hydrastin and iron. The treatment was soon followed by permanent relief.

## SCROFULA.

Scrofula, says Ericksen, is a peculiar constitutional condition, either hereditary or acquired, that leads to the formation of, and in its full development is characterized by the presence of tubercle. It is, however, only when fully developed that scrofula gives rise to the local deposit of tuberculous matter. The constitutional condition that tends to this is sufficiently characteristic; but although we may recognize its existence, and speak of the individual possessing such a constitution, as having a scrofulous tendency or diathesis, he can scarcely be considered to labor under the fully formed disease, unless tubercle be deposited in some of the tissues or organs. The scrofulous diathesis is a peculiar constitutional state that is often erroneously confounded with general debility. It may and often does co-exist with this, but is by no means synonymous with weakness of constitution. Debility often exists without any scrofulous tendency or taint, more particularly in individuals of the nervous temperament; many delicate people, though weak, being perfectly healthy, and showing no disposition to this peculiar affection; on the contrary, the scrofulous tendency is often conjoined with much muscular power and mental activity, no weakness being manifested in either of these respects. Scrofula is invariably conjoined with debility and a perversion of the nutritive functions of the organism. This is especially manifested in certain tissues, such as the mucous and cutaneous, and in those organs the vitality of which is low, as the lymphatic glands, the bones and joints. In these, scrofula is especially apt to influence the products of nutrition and of inflammation, more particularly during the earlier periods of life, when these actions are most energetic, in such a way as to render its existence evident to the surgeon. It is this tendency to the occurrence of particular

diseases, and to the engrafting of special characters on affections of certain tissues, that may be considered as specially indicative of the scrofulous diathesis, of that condition which, in its fulness of development, gives rise to deposits of tubercle in the organs and tissues.

The existence of this diathesis is marked by the presence of a peculiar temperament, — by special modifications of the seat, form, and products of inflammation, and, lastly, by the development of tubercle.

The scrofulous temperament assumes two distinct forms, and each of these presents two varieties. The most common is that which occurs in persons with fair, soft, and transparent skin, having clear blue eyes, with large pupils, light hair, tapering fingers, and clear white teeth; indeed, whose beauty is often striking, especially in early life, being dependent rather on roundness of outline, than grace of form; and whose growth is rapid and precocious. In these individuals the affections are strong, and the procreative powers considerable; the mental activity is great, and is usually characterized by much delicacy and softness of feeling, and vivacity of intellect. Indeed, it would appear that the nutritive, procreative, and mental powers are rapidly and energetically developed in early life, but become proportionably and prematurely exhausted. In another variety of the fair scrofulous temperament, we find a coarse skin, short and rounded features, light grey eyes, crisp and curling sandy hair, a short and somewhat ungainly stature, and clubbed fingers; but not uncommonly, as in the former variety, great and early mental activity, and occasionally much muscular strength.

In the dark form of the scrofulous temperament, we usually find a somewhat heavy, sullen, and forbidding appearance; a dark, coarse, sallow, greasy-looking skin; short, thick, and harsh curly hair; a small stature, but often a degree of torpor or languor of the mental faculties,

though the powers of intellect are sometimes remarkably developed. The other dark strumous temperament is characterized by clear, dark eyes, fine hair, a sallow skin, and by mental and physical organization that pretty closely resembles the first-described variety of the fair strumous diathesis.

In all these varieties of temperament, the digestive organs will be found to be weak and irritable. This condition, which I believe is invariably associated with struma, and the importance of which has been pointed out by Sir James Clark, must be regarded as one of the most essential conditions connected with scrofula, and as tending greatly to that impairment of nutrition which is so frequent in this state. This gastric irritability is especially characterized by the tongue, even in young children, being habitually coated towards the root with a thick white fur, through which elongated papillæ project, constituting the pipped or strawberry tongue; the edges and tip, as well as the lips, being of a bright-red color. This state of the tongue is aggravated by stimulants, high living, and the habitual use of purgatives. In the fair varieties, the bowels are usually somewhat loose; but in the dark forms of struma, there is a torpid condition of the intestinal canal. In all cases the action of the heart is feeble, the blood is thin and watery, and there is a tendency to coldness and often to clamminess of the extremities.

One of the most marked characteristics of struma, is certainly the peculiar modification that inflammation undergoes, whether we regard the course that it takes, the form that it assumes, its products, or its seat. The course of inflammation in strumous subjects is always slow, feeble, and ill-developed, the more active and sthenic conditions being rarely met with. In its form, it is either ulcerative, congestive, or suppurative, and in its products it is characterized by little tendency to adhesion, by the



production of thin, weak, blue, and ill-developed cicatrices, and by the formation of thin, curdy pus, with much shreddy corpuscular lymph.

The seat of strumous inflammation varies greatly; the peculiar modifications of its course, form, and products, are assumed, according to the part that it affects. The tissues implicated by it, are chiefly the skin and mucous membranes, the joints, and the bones; occasioning a great variety of special diseases, according as one or another of these structures is affected. It is as the result of, or in connection with, these local affections, that the general symptoms of struma become most marked. Whatever the temperament may be, the individual becomes emaciated, sallow, cachectic, and debilitated, and at length falls into a state of hectic or marasmus.

When affecting the skin, scrofula declares itself under a variety of cutaneous eruptions, especially the different forms of eczema of the scalp, and various ulcers on the surface, usually weak and largely granulating, with considerable swelling of surrounding parts, and a tendency to the formation of thin, blue, and glazed cicatrices.

The *mucous membranes* are commonly extensively affected, and often present the earlier forms of scrofulous disease in childhood; this is more especially the case with those of the eyelids and nose. The conjunctiva becomes chronically inflamed, with perhaps ulceration of the cornea; the mucous membrane of the eyelids may be permanently congested and irritated, with loss of eyelashes, constituting the different forms of psorophthalmia. The mucous membrane lining the nostrils becomes chronically congested, red, and swollen, giving rise to habitual sniffing of the nose, and to a sensation as of a constant cold. Occasionally the lining of the antrum becomes irritated, and may then occasion an enlargement of this cavity, or the discharge of unhealthy pus into the nostrils. The



tonsils are often found chronically enlarged and indurated, with occasional tendency to fresh inflammation; and the larynx may become the seat of various forms of aphonia, dependent on congestion of its lining membrane. The state of the gastro-intestinal mucous membrane, has already been described when speaking of the state of the tongue; and that of the genito-urinary organs is also marked by a tendency to debility and irritation, indicated by the occurrence of discharges from the urethra, under the influence of very slight exciting causes, and that are often very permanent in their character. The occurrence of calculus in the bladder, especially in children, may also occasionally be attributed to the serofulous diathesis.

Perhaps the most important local diseases arising under the influence of this agency, are those of *the bones and joints*. The bones are liable to the occurrence of various forms of caries and necrosis; more especially those that are spongy in their texture, as the short bones of the foot, and the articular ends of the long bones. The joints are liable to that large class of affections that are commonly known as *white swellings*, and which consist of thickening, disorganization, ulceration, and suppuration of the synovial membranes and cartilages.

Lastly, some of the *glandular organs* are peculiarly prone to serofulous disease. Enlargement of the lymphatic glands, more particularly those at the side of the neck, and the glands of the jaw, is of such frequent occurrence, and is usually so early a sign, that the surgeon, in determining whether an individual is serofulous or not, commonly passes his hand over the glands in these situations, in order to ascertain their condition and size; these glandular enlargements are especially apt to run into unhealthy and chronic suppuration. The testes and the mammæ are occasionally affected; and other glandular

structures, though sometimes implicated, are by no means so commonly found diseased, as those just mentioned.

The occurrence of *tubercle* must be looked upon as the distinctive characteristic of serofula, and when it occurs it may be considered a sure sign of this affection, which has then reached its ultimate development. In those cases in which the serofulous diathesis exists without having given rise to this product, it must be considered as not having been called into full and active operation, having merely manifested itself in the minor forms of the disease, such as ulceration of the skin and mucous surfaces.

Tubercle, though sufficiently well marked by its appearances and progress, cannot be looked upon as a specific affection, but must be considered to be a perverted or unhealthy development of the nutritive materials, destined for the repair of the body and the restoration of the blood. According to Mr. Simon, it consists of the lymph or nascent blood. It is a "dead concretion," a "fibriniform product, insusceptible of development." "The serofulous diathesis," says Mr. Simon, "consists in a peculiarity of blood development, under which the nascent blood tends to molecular death by superoxydation." According to Dr. Williams, tubercle is a degraded condition of the nutritive material from which the old textures are renewed, and the new ones formed, and it differs from fibrine or coagulable lymph, not in kind, but in degree of vitality and capacity of organization."

"Tubercle essentially occurs in two forms, as semi-transparent grey granulations, smooth and cartilaginous in look, somewhat hard, closely adherent, and accumulated in groups, often with a good deal of inflammatory action in the surrounding tissues. These grey granulations, usually about the size of a small pin's head, appear to consist of a modified exudation of matter. They have a tendency to run into masses, and to form the true yellow tubercle,

which is met with in opaque, firm, but friable concretions, of a dull whitish or yellowish color, homogeneous in structure, and without any appearance of vascularity.

The microscopic characters of tubercle present no very specific appearances. We find that this product presents under the lens, a homogeneous struma, which chiefly occurs in the grey granulations, a granular matter which is principally met with in yellow tubercles, drops of molecular oil, and, lastly, considerable quantities of imperfectly developed exudation cells, more or less disintegrated, stationary or degraded.

The progress of tubercle is most commonly to disintegration and liquefaction, at the same time that it gives rise, by its irritation, to inflammation and suppuration in the surrounding tissues; hence it commonly leads to abscesses, the pus of which is always curdy and shreddy. In some cases tubercle may become indurated, and undergo a species of calcification. The *causes* of scrofula, unless this be of an hereditary character, though very various in their nature, are usually such conditions as influence injuriously the nutrition of the body. The hereditary nature of scrofula is well known, both to the public and to the profession, for although the disease is not commonly connate, yet the tendency to it is, and the characteristic nature of the affection often manifests itself at an early period, notwithstanding every effort to prevent its development. That a parent may develop a tendency to malnutrition, to misdevelopment of the blood, just as he may a peculiar feature or mental condition, is undoubted. It is by the hereditary transmission of peculiar combinations and modifications of action in the organization, that hereditary diseases develop themselves at certain periods in the life of the offspring, when the injurious results of the morbid actions that have been transmitted, have had time to be produced. There are certain conditions which, though not scrofulous,

are supposed to have a tendency to develop this disease in the offspring to which they are transmitted ; thus dyspeptic parents are said, and I believe with reason, to have strumous children ; so, also, the offspring of very old or very young people, often exhibit a proneness to scrofulous affections. The influence of intermarriage is still a matter of doubt, though I believe it exerts but little influence in this respect, and it is commonly stated that the inhabitants of little communities, who intermarry closely, such as those in the isles of Portland and Man, are not more liable to scrofula than other individuals. The most potent cause of scrofula, and that which in civilized countries is likewise most frequent, is mal-nutrition, arising either from want of food, or the use of inferior food by the poorer classes, or from over-feeding, and over-stimulation of the digestive organs in the children of the wealthier orders of society, thus inducing chronic irritation of the mucous membrane of the stomach, interference with the digestive powers, and consequently with nutrition. The influence of food that is insufficient in quantity, or innutritious in quality, has been shown by Mr. Phillips, in his excellent treatise on scrofula, to be the more immediate cause of this disease ; and when conjoined with the injurious atmosphere of large towns, of close and over-crowded rooms, and want of light and exercise, may be considered as sufficient to occasion the disease in those cases in which no predisposition to it exists, and greatly to develop any tendency to it in the system. It is to the conjoined influence of agencies such as these, that we must attribute the prevalence of scrofula amongst the lower orders of town and rural populations.

Scrofula is often called into immediate action by the debility induced by previous diseases, such as measles, scarlatina, hooping cough, &c. It usually develops itself at an early age, though seldom before the child has reached

its second year. It is most commonly about the period of the second dentition that the disease declares itself, and it is rare to meet with it, for the first time, after the ages of twenty-five or thirty-five.

According to Phillips, when it is fatal it generally proves so before the fifteenth year; 60 to 70 per cent. of the deaths occurring before this age. Sex does not appear materially to influence this disease, though according to the same authority, the deaths of males from serofula, exceed those of females in this country by 20 per cent. If, however, we are to regard phthisis as an allied affection, people who are serofulous in early life, often having phthisis developed at a later period, these numbers may require correction.

#### TREATMENT.

The treatment of Serofula may be divided into preventive and curative. The preventive treatment consists in so regulating the diet, as to supply all deficiencies in the histogenic material of the different tissues. The digestive and assimilating organs should receive special attention, every possible effort being made to increase their tone. The surface should be bathed three or four times a week in warm or cold water, as best agrees with the constitution. A liberal amount of exercise in the open air should be taken, and the patient should avoid all excesses, both physically and mentally. When these means fail to arrest the tendency to serofula, a moderate amount of stimulants, in combination with small quantities of Iron, may be taken before each meal. When the disease has become fully developed, whether in the skin, lungs, bones, liver, stomach, uterus, kidneys, or any other part of the system, the constitutional treatment should consist in a thorough tonic and alterative course. In case the disease appears in the form of herpes or pustules, the treatment has been fully described under that head. Or, if in the form of

phthisis, the treatment has already been given. When scrofula manifests itself in the form of ulcers, of an indolent or irritable character, the constitutional treatment should consist of the following remedies :

R Scrophularin .....	gr. xx.
Bitartrate of Iron .....	ʒij.
Chloride of Sodium.....	ʒj.
White Sugar.....	ʒij.

Mix, triturate, and take one teaspoonful three times a day. The diet should consist of rich animal broths, ripe fruit, &c. ; and a wine-glass full of malt liquor should be drunk with each meal. The ulcer should be stimulated by the occasional application of a mild solution of sulphate of zinc, or vegetable caustic. The limb should be bandaged with moderate tightness, and the ulcer covered with a soft slippery elm poultice. After the above treatment has been pursued for about two weeks, it should be changed to the following :

R Compound Syrup of Stillingia.....	Oss.
Syrup of Apocynum .....	Oss.
Syrup of Iodide of Potassium.....	ʒij.

Mix ; dose, from one teaspoonful to one tablespoonful three times a day. This treatment should be pursued for two or three weeks, when it should be omitted, and the following substituted :

R Phosphate of Lime.....	ʒss.
Carbonate of Iron.....	ʒij.
Phytolaccin.....	gr. xv.
White Sugar.....	lbj.

Mix, triturate and add to one pint of water, and one pint of best gin. Dose, one tablespoonful three times a day. If the ulcer should still prove indolent, it may be touched with caustic of potassa, followed by a poultice of slippery elm, wet with Tinct. of Arnica. Where the disease appears in the form of caries or necrosis of the bone, the dead por-

tion should be destroyed by the sulphate of zinc, or caustic potassa. The sore should be stimulated as in ulcer of the soft parts, until it becomes healthy. After which collodion, or a mild ointment, may be applied, until union takes place. In no case, however, in disease of the bones, should the ulcer be allowed to heal until the necrosed portion of bone has been entirely exfoliated, and the ulcer healthy in every respect.

Where serofula attacks the glands of the axilla, groin, or breast, causing enlargement and irritability of these parts, absorption should be promoted, if practicable, by the use of Iodine ointment and moderate pressure; if this fail, suppuration may be induced by the application of a poultice of equal parts of gum-myrrh, capsicum, and slippery elm. In such cases, Phytolaccin, Iodide of Potassium, Apocynin, in connexion with the compound alterative syrup, are the remedies to be used. In the treatment of this disease, the surface should be frequently bathed, the diet should be nutritious, and consist of both vegetable and animal food. The sleeping apartments should be freely ventilated, and the habits of exercise well regulated.

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## MERCURIAL DISEASE.

There is no disease more formidable in its attack upon the organic tissues than this; not only in its tendency to develop a great variety of pathological conditions, but in the peculiar obstinacy with which it resists the efforts of the physician to arrest its progress. Mercurial diseases manifest themselves in periodic rheumatic affections of the joints, in enlarged and indurated condition of the various glands of the body, in the form of dropsies, anæmia, phthisis, palpitation of the heart, dyspepsia, blindness, deafness, loss of teeth, convulsions; in fact, there is no form of disease that is not occasionally represented by



the disastrous influence of mercury. When once introduced into the system, the manner in which mercurial preparations affect the different tissues, is as yet a matter of some dispute. Although it is claimed by those who still persist in its use, that it possesses the power to change the morbid condition of the part affected into another morbid state, which is far less dangerous to the life of the patient than the primary affection; that it acts as a stimulant to the liver, and a purgative to the bowels; in short, it is claimed by those who still adhere to the dogmatism of allopathy, that it is essential to the successful treatment of nearly all inflammatory, as well as chronic diseases. But in what way it stimulates the liver, or how it arrests fever, or subdues inflammation, they are unable to tell us beyond mere conjecture.

It certainly cannot be owing to its power to increase the histogenetic material for the reparation of injured organs, nor to its tendency to reorganize the blood, or other fluids, as the most minute chemical analysis has failed to detect the least trace of mercury in the organic tissue, unless it had been first introduced into the stomach, and then always acting as a foreign agent, and in no way identified as an element of the human organism. The only way by which the *modus operandi* of mercurials upon the organic tissues can be explained, is that by which we explain the inability of all foreign agents to produce disorganization, unless the quantity be sufficient to overpower the *vis-vitæ* of the part with which it comes in contact. When a foreign body is introduced into the external soft tissue, the vitality of the part is at once summoned to remove the intruder, consequently a deposition of lymph occurs around the foreign body, which soon becomes organized in such a way as to cut off all communication between the foreign body and the adjacent tissues. Inflammation and suppuration are the agents used to

expel the body, so when mercury is introduced into the system, it acts as a foreign body to every tissue with which it comes in contact, and an effort is made to expel it. When mercury is combined with chlorine, as in calomel, it may entirely dissolve the tissues, such as the mucous membrane of the stomach, bowels, lungs, &c. But whether we are able or not to account for all the morbid conditions produced by this agent, we have the most positive assurance, that in the whole catalogue of predisposing causes to disease, there is none more prolific than this. Allopathists themselves are beginning to observe this fact, in confirmation of which, I will introduce the remarks of W. Porter, M. D., F. R. C. S. I., &c., as published in the Dublin Medical Press of Feb. 10, 1847.

Dr. Porter observes: "I think that mercurial diseases, properly so called, that is, such as arise from mercury alone, admit of subdivision into two classes, according as they seem to be products of a small or a large dose of the poison; when taken in small quantities, it appears to be determined to the tegumentary structure of the skin, the mucous membranes and analagous tissues, such as the conjunctiva of the eye, and therefore bowel complaints, cutaneous eruptions, and superficial inflammations are generally met with at an early period, and before the specific effects of the medicine ought to be expected to appear; when taken in large quantities, the nervous system is most likely to suffer, and that too where the specific effects have not been developed at all, which is the case most pregnant with danger, or that being present and in full operation, they have been suddenly checked, or otherwise interfered with, by improper or incautious exposure. Some few cases occur whilst patients are under complete salivation; but it is so difficult to say that such may not have been guilty of some irregularity, that they may be placed within the latter category, and at all events they

are of rare occurrence. Such is the arrangement I propose to follow in considering these affections; not, however, without being conscious of its imperfections, and that numerous diseases arise, or seem to arise, from the irritation of mercury, that run a wild and unbridled course, which it would be impossible in the present state of our knowledge to subject to this or almost any other classification. Persons, for instance, whilst taking mercury, become deranged: the examples of this which I have seen were all maniacal, and the symptoms such as might be expected from inflammation of the brain and its membranes; these patients all died. Whether such an event was the effect of too sudden exposure to wet or cold—whether it could be regarded as a kind of metastatic transfer of the mercurial irritation to the brain, or whether it had any direct connection with the mercury at all, I am unable to prove, but certainly at the time when each occurred, I could not help placing the mercury and the madness in the relation of cause and effect. Again, persons whilst taking mercury have become paralytic. When I was in college, a young friend of mine, slightly under the influence of the medicine, was exposed to an incessant shower of rain for nearly two hours; he went to bed, where he had a rigor, but fell asleep, and awoke perfectly paralytic on one side; he lived many years afterwards, but never recovered the use of his limbs. A young clergyman who had taken mercury for a liver complaint, and had apparently nearly recovered from its effects, incautiously fell asleep on the grass; he awoke paralytic, and never recovered, although he lived to more than middle age. Perhaps it may be said that these are not fair specimens of the morbid influence of mercury upon the nervous system; perhaps it may be doubted whether mercury had any relation to such cases at all, inasmuch as persons have become paralytic from exposure, who have never taken a

grain of the medicine. I know not how this may be. My opportunities of investigation have been too limited to enable me to speak with confidence on a matter of so much obscurity ; but my experience in many instances has led me to believe that mercury may prove eminently mischievous in this particular manner. But suppose we acknowledge that mercury may and does act injuriously on the nervous system in all its parts and in its various ways, how are we to account for its prejudicial influence on other systems and structures, particularly as to its production of an hemorrhagic tendency ? Several years ago, when investigating the pathology of aneurism, I remarked the frequency of that disease in persons who had been subjected to protracted courses of mercury, and I then hazarded an opinion that this fearful and dangerous affection might be occasionally thus induced ; since then, I have paid great attention to the subject, and have observed different kinds of hemorrhage so frequently ensue after mercury had been extensively used, that I feel convinced of its injurious influence in this respect. Almost all the aged people treated with mercury for syphilis, have, according to my observation, died shortly afterwards of hæmoptysis, or else of apoplexy ; nor are such casualties confined to the aged, for I have seen several instances of young persons under similar circumstances, being seized with spitting of blood, and dying rapidly of consumption. It may be imagined that I am presenting the possible injurious effects of mercury in too strong colors, and that my apprehensions on this subject, as being derived from the experience of a few cases, are little more than visionary ; be it so ; but having remarked the fact, I think it my duty to state it, and leave it to be established or contradicted by future experience.

“The tendency of mercury to produce a hemorrhagic condition, is readily explicable by the effects of the mineral upon the fibrin of the blood.” W. H. Ranking, M. D.

Mercurial erythema is sometimes preceded by symptoms resembling those which usher in erysipelas, shivering, nausea, foul tongue, thirst, headache, cough, and pains about the præcordia, and these febrile symptoms, not only continue throughout, but in severe cases become daily aggravated; sometimes it occurs without any premonitory notice, except a harsh dryness of the skin; and I have known it to appear suddenly the day after the administration of three or four grains of calomel as a purge. It may be a consequence of administering mercury in any of its forms or preparations, but seems more frequently produced by its administration internally. I have, however, seen an exceedingly well marked case of it from dressing a sore with the red precipitate. It appears as a dark red blush at some of the folds of the body, the seat of the scrotum, the groin, axillæ, or anterior parts of the elbow, from which it spreads with a greater or less degree of rapidity, according to the severity of the case. This is distinguished from ordinary erysipelas, by its surface being slightly rough to the touch—by its edge not being distinctly defined—by its intolerable itching, which is the local inconvenience chiefly complained of in the first instance—and by its vesicular appearance when viewed through a magnifying glass. Whenever the surfaces of the body lie in opposite contact, such as in the perineum, the inside of the thighs, or between the folds of the nates, these vesicles break almost as soon as formed, the parts become abraded, and there is a constant oozing of a serous fluid, foul and abominably fetid. In modern times, the disease seldom progresses beyond this, which is termed the first stage; but suppose it neglected, and the use of mercury still persevered in, the febrile symptoms become exasperated, the eruption spreads, and may so extend as to occupy the entire body, and the vesications, or rather vesicles, run into each other and break. Where surfaces are opposed,

the discharge increases in quantity, assumes a puriform character, and becomes, if possible, still more offensive; when they do not, a branny seurf or scale is formed, which falls off, and is renewed so abundantly, that after the night, or even after a few hours, a great quantity may be found in the patient's bed. In general, this desquamation of the skin is attended with febrile symptoms, and the patient slowly recovers; but if otherwise, if the disease has been more than usually malignant, or if the medicine has been still persevered with, the parts engaged (and these may be the entire body) swell, apparently by the formation of thicker scabs or crusts, which are deeply cracked or fissured (not inaptly compared to the scored skin of roasted pork), discharging sometimes sanies, sometimes blood, and so sore and painful that the patient can scarcely bear to turn himself in bed. I am not quite sure that I ever saw a fatal case of mercurial erythema. About five years ago a poor Scotchman was brought into the hospital covered with a scurfy eruption, and in a miserable state of debility, who attributed his illness to having taken some medicine, which he believed to have been corrosive sublimate, for the cure of clap, in despite of the treatment, he died (as several thought) of this disease; but if it was so, there was a symptom here present not described hitherto as appertaining to it, namely: a discharge of purulent matter as foul and offensive as that from a glandered horse, from every mucous outlet of his body, mouth, nostrils, eyes, ears, anus and urethra. I know not, I say, whether this was a specimen of the disease or not; but without passing to such extremity, the description given by those who had witnessed the latter stages of the malignant erythema, is sufficiently appalling. The cough becomes very severe, and is accompanied by great soreness of the chest; the matter expectorated is sometimes highly tinged with blood, which is so coagulated as to threaten suffocation. The



pulse is frequent and irregular, the surface of the body is intensely hot and sore, the thirst becomes unquenchable, the tongue becomes parched and black in the centre, and the urine is high-colored, small in quantity, and without sediment. Wretched, indeed, is the situation of the patient in this stage of the disease; without the enjoyment of one moment's repose, afflicted in body with the most excruciating anguish, and depressed in mind to the lowest state of despair, he soon falls beneath these complications of wretchedness. Diarrhœa and low delirium speedily supervene, the pulse sinks, the body mortifies, and a state of insensibility at length announces the termination of a complaint that at once exhibits a distressing proof of the inefficiency of medicine, and the insufficiency of human skill."

Before I speak of the treatment, allow me to revert for a moment to the history of this disease. Alley states, "that before the nature of this disease was known, *it was considered as a more virulent form of Syphilis*. In proportion, therefore, as the disorder advanced, mercury in some form or other was exhibited in greater quantity; the fever, consequently, was soon found to be increased to an alarming degree, by the action of the mercury thus heaped upon an already overloaded system; and lest the patient should sink too rapidly under the oppression of this fever, recourse was had to tonics and stimulants. Among these the bark and wine were resorted to, without any regard to symptoms and appearances. It is almost unnecessary to add, that the disease was in almost every instance dreadfully aggravated, and that very few recovered." Now, recollect that all this happened in a Lock Hospital, and at a time when all cases of venereal disease were treated with mercury. The patient was surrounded by, and actually breathing a mercurial atmosphere, and you can easily understand why medicine and



medical skill were inefficacious and insufficient. It was useless to prescribe purgatives, and acids, and antimonials, and other cooling medicines, the cause of the fever remaining ever present; it was in vain to endeavor to support the strength by bark, and wine, and opium, while the tendency to putrescence was constantly on the increase. At present the disease is known to be mercurial.

*Mercurial Erethismus.* — Mr. Pearson tells us, that in the course of two or three years after his appointment to the Lock Hospital, he observed that in almost every year, one or two cases of sudden death occurred among the patients; that these could not be traced to any ostensible cause, and that the subjects were those who had nearly and sometimes entirely completed their mercurial course. He consulted Messrs. Bromfield and Williams on the subject, and they were unable to give him any information, more than that they had carefully examined the bodies of many who had thus died unexpectedly, without being able to discover any morbid appearances. On watching the effects of mercury on the patients, he ascertained that these deaths were attributable to the mineral acting as a poison on the system, and that its deleterious effects were neither in proportion to the inflammation of the mouth, nor to the actual quantity of mercury absorbed into the body."

#### TREATMENT.

The treatment of mercurial disease is usually less successful than the treatment of most other diseases; although much good may frequently be done by a proper course of medication.

If mercurial disease is manifested in a mild form, the patient should be caused to take a gentle purge of Podophyllin, the surface should be freely bathed in salt water, a mild course of tonics should be commenced and pursued,

and a generous diet should be allowed. This course will frequently remove the most troublesome symptoms.

In more severe cases, as much of the mercury should be extracted from the system as possible, by recourse to the galvanic battery. After which, Compound Syrup of Stillingia, in connection with small doses of Sulphur, will be required. The surface should be frequently bathed in Saline water, and Iron and Hydrastin given in doses sufficient to maintain the patient's strength. Where the disease appears to confine its poisonous action chiefly to the skin, much benefit will frequently be derived from the use of an ointment made of equal parts of tar and sulphur.

#### IMPORTANCE OF CERTAIN SYMPTOMS IN DIAGNOSIS.

In order to form a correct opinion of the nature, character, and identity of disease, it is necessary to take a general survey of the physical characteristics of the patient: as his weight, height, temperament, age, whether his constitution is of a strumous or scrofulous diathesis, whether of temperate habits, and whether he has been subjected to a mercurial course of medication.

Every possible item of information relative to the disease, should be obtained from the patient and nurse, which will in the least assist in forming a correct diagnosis of the case. If the heart, lungs, liver, or spleen are implicated, auscultation, percussion, palpation, and mensuration, should be practised, for the purpose of forming a correct opinion of the true nature of the disease. Some of the special symptoms which should engross our attention, are the appearance of the tongue, the appetite, respiration, circulation, sleep, the skin and secretions, and state of the intellect. Pain is the result of some impression made upon the nerve, and transmitted to the brain; the pain may be remote from the impression, as in hip disease the pain is generally in the knee; the irritation

causing pain in the head, may be in the stomach ; or pain in the shoulder may occur, as the result of congestion of the liver. The amount of pain suffered by different individuals from the same disease is various, owing to the different sensibilities of the persons, and dependent upon the temperament. Hence the amount of the pain experienced by the patient, is indicative of the amount of the disease, *ceteris paribus*. A dull heavy pain generally indicates congestion, effusion, or the pressure of some tumor ; fugitive pain indicates a stretch of some part ; lancinating pain is characteristic of cancer, rheumatism, pleuritis, or neuralgia ; a heavy, throbbing pain, indicates the collection of pus ; itching pain is mostly confined to the skin and mucous membrane ; on the skin it is caused by eruptive diseases, and on the mucous surface by ascarides in the rectum, &c. When pain suddenly ceases, followed by cold clammy sweats, weak pulse, and sunken countenance, an attack of the affected part by gangrene is indicated.

The tongue affords many important indications of disease of the digestive organs. When the tongue is thickly furred, and of a white or brownish color, it indicates a derangement of the mucous membrane of the stomach. If, in addition to the above, it should have a red appearance at the end, it indicates the mucous membrane of the stomach to be in a high state of irritation or inflammation. A dry red tongue also indicates the same state of the stomach. A cracked and swollen tongue, indicates an extensive irritation of the nerves of the stomach, and also that the brain is involved. When the tongue is tremulous, great nervous prostration is indicated. A dry, furred, or red and tremulous tongue, is often present in typhoid fever. A light, flat tongue, is characteristic of most forms of intermittent fever. Much information, relative to disease, may be obtained by a thorough knowledge of the circulation, as indicated by the pulse. The conditions of

the pulse, indicative of disease, are various. The increased frequency of the pulse is one of its most common varieties, and may exist in a great many pathological conditions of the system. The number of beats per minute, constituting an increase of pulse, varies much in different individuals, and also at different periods of life. In infancy, the normal pulse is said to be from 78 to 180 per minute. Between the age of two and six months, from 100 to 120 per minute. Between the age of two and seven years, about 110 per minute. From seven years to twenty-five, from 80 to 85. From twenty-five to sixty-five years, the average pulse per minute is about 70 to 75. In females it will be found to be somewhat faster: the number of pulsations per minute is greater during the day than night; and more frequent just after a meal than before. From the above statement, it will be perceived that a great variety of circumstances must necessarily be considered, in order to derive much benefit from this condition of the circulation in diagnosis. When the pulse is slow, or much less than the usual number of beats per minute, it frequently indicates disease of the brain; it is also characteristic of other diseases. An intermittent pulse indicates either a disease of the brain, or extreme exhaustion of nervous energy. A weak and feeble pulse indicates anæmia and debility. Hope states, that when the pulse is jerking, quick, hard, and strong, and stops abruptly, it indicates a deficiency in the semilunar valves of the aorta. In inflammation of the peritoneum, the pulse is mostly small and quick, but quick and hard in inflammation of the lungs and pleura. When the pulse is easily compressed under the finger, it indicates a feeble condition of the heart. When the pulse ceases to be felt in the extremities, it indicates great danger, unless it is merely temporary. The appetite is another symptom of much importance to be observed in disease. In most

diseases, the appetite is defective, indicating inability of the stomach to digest food, and loss of assimilating power. Under these circumstances, food introduced into the stomach, acts as a foreign substance, and is the cause of much mischief. In some diseases the appetite is not defective; in these cases, the powers of the stomach, as well as the assimilating functions, remain unimpaired. In some forms of phthisis, the rapid exhaustion of the nutritive material increases the demand for food beyond its normal amount. In chlorosis, the appetite is frequently capricious, craving lime, clay, slate, stones, &c. This kind of appetite indicates a lack of proper histogenic material, as well as a deficiency in the salts of the blood. In children, the appetite frequently craves sugar, fats, &c., which indicates a deficiency of the combustive material, and a consequent loss of temperature.

There may also exist a variety of morbid appetites, such as a craving for stimulating liquors, opium, tobacco, ether, &c., all of which indicate a diseased condition of the stomach or brain. Respiration should also be carefully noticed in forming a diagnosis of disease. If respiration is increased in frequency, it denotes obstructed circulation through the pulmonary tissue. It may also indicate irritation of the lungs or bronchial tubes. There are a variety of conditions, which may tend to increase the functions of respiration. The respiration may be irregular and imperfect, as in tuberculous condition of one or both lungs, or from a valvular disease of the heart and inflammation of the pleura.

The menses are deranged in many diseases. They may be scanty or they may be profuse. In some instances they are entirely suppressed. They are at times changed in quality, and the period of their return may be irregular. When the catamenia is scanty, it either indicates a diseased condition of the ovaries or deficient nutrition. Suppression

of the menses may indicate a variety of opposite conditions. It may depend upon pregnancy, upon nursing, or upon age. It may exist in any of these cases without inducing disease. The menses may be suppressed by the extreme exhausted condition of the system, as in the last stage of phthisis, dropsy, &c. Or they may be suppressed by sudden exposure to cold or damp during the catamenial flow. The menses may also be vicarious, making their exit from the system through the lungs, stomach, bowels, &c. A change in the quality of the menses denotes disease of the uterus, or ovaries, or a serofulous diathesis. Excess of the menses indicates a chronic inflammation of the lymphatic glands of the uterus, spermatorrhæa, &c.

#### SIGNS FROM THE URINE.

Healthy urine, when recently voided, has very nearly the temperature of the body; it is of a light yellow color, emits a peculiar aromatic odor, has a bitter saline and pungent taste, and a slight acid reaction; its specific gravity is about 1.018. From 90 to 93 parts to 100 of healthy urine is water, the remainder is made up of uric acid, saline and organic matter.

About  $2\frac{1}{4}$  oz. of solid nitrogenized and uric matter is thrown off from the kidneys every twenty four hours. If the urine be acid, it will redden blue litmus paper; if it be alkaline, it will turn red litmus paper blue; if neutral, it will have no effect on the color of either. If the urine contains albumen, heat or nitric acid will cause it to coagulate, and give the urine a thick milky appearance. If the urine contains blood, heat or nitric acid will cause it to lose its transparency. If it contains bile, nitric acid will turn it green; if it contains uric acid, nitric acid will cause it to look dark, and precipitate a brownish sediment. If it contains sugar, it may be ascertained by evaporating a small quantity to the consistency of molasses, which will

have a sweet taste. A milky appearance may be caused by mucus, albumen, or ammonia. If it contains ammonia, nitric acid will cause a brisk effervescence; if it contains mucus or albumen, nitric acid will cause it to coagulate. Dr. Bird states, that if the sediment of morbid urine be white, and the urine acid, it consists mostly of urate of ammonia; but if it should disappear by heat, it is phosphate of ammonia. If a deposit be made of any color inclining to dark pink, or red, it is almost sure to be urate of ammonia, unless visibly crystalline, in which case it consists of uric acid. When the urine contains albumen, it indicates granular degeneration of the kidneys, or Bright's disease, unless it is connected with low forms of fevers, or in certain forms of heart disease. If the urine contains sugar, it indicates mal-assimilation or diabetes mellitus. A gritty sediment denotes a tendency to some of the forms of gravel. Mucus in the urine is usually owing to the enlargement of the prostate gland. Pus in the urine indicates abrasion of the bladder, kidneys, or urethra. Bile in the urine indicates a re-absorption of the bile from the liver, or that the liver fails to secrete the bile from the blood. This symptom is present in most forms of intermittent fever, jaundice, disease of the liver, &c.

#### THE FÆCES AS INDICATING DISEASE.

The inspection of alvine evacuations is of great importance in making up the diagnosis of disease. Where the bile is deficient, they are of a light ash color; if there is an excess, they are quite yellow. A red appearance of the stools indicates passive congestion; if red and thin, they indicate hyperæmia. If they are of a bloody mucous character, inflammation of the colon is indicated. When the stools are bloody in typhoid fever, they indicate ulceration of the glands of the bowels. When the fæces are very thin, and of a rice color, deep capillary congestion is indicated, as in cholera, choleric, &c.



The condition of the mind should also be taken into consideration in diagnosis. To what extent the mind controls or influences the morbid tendencies of the body, is difficult to determine; but, that it has a powerful influence, not only in increasing the severity of morbid phenomena, but also of controlling it, is a fact too apparent to every observing physician to need comment. The conditions of mind, however, which contribute to the amelioration or increase of organic disease, are as yet but imperfectly understood. Kossuth stated, in one of his addresses before the American people, that while lying very low with fever, not having been out of bed for a considerable length of time, he received very important intelligence, upon which he arose, and entered at once upon active duties, without feeling any further embarrassment from his disease.

Instances are of almost daily occurrence, in which patients, who have for a long time labored under some low chronic disease, hear of a new remedy, which, if taken, is sure to remove it; and if taken at the time when the mind is most positive, for a time, at least, all the symptoms undergo improvement.

There are other instances of the most violent mental and physical agonies being relieved by the supposed virtue imparted to a glass of water or a bread-pill by a clairvoyant, or so-called spiritual medium, magnetic passes, &c. These things may appear to the novice in observation, absurd; yet they are living facts which must be met and should be investigated. This class of cures is not confined to the nervous and weak alone; but the athletic are frequently the passive subjects of these mysterious operations of the human mind. Even infants, whose minds are not susceptible of imaginary impressions, are said by the best of authority, to have disease controlled by the action of other minds. A circumstance was related to me to-day by a gentleman of undoubted veracity, of a child while laboring

under a protracted brain affection, being relieved in a few hours by one who claimed to be a spiritual medium. He magnetized a glass of water, as he stated, and by giving a teaspoonful every five minutes, the child was relieved. Another instance was related, of a similar glass of water acting as a cathartic in fifteen minutes, although there was obstinate costiveness at the time. Mental impressions, as affecting disease, have been noticed from the earliest history of medicine until the present time.

The mystic ceremonies of the Esculapians, the incantations of Galen, the rites and ceremonies of Avicenna, were another mode of producing the same results. The effects of Indian charms, the supposed power of the seventh son, of men born with a caul over the face, of touching a dead body for the cure of cancers, of taking water, in which sugar pills have been placed, are all examples of the effect of the mind over the diseases of the body.

While the mind may be thus beneficially directed upon diseased organs of the body, it frequently has an opposite tendency. It is a familiar fact, that nearly every disease that affects the human family, may be, and is occasionally induced by a perverted action of the mind upon the body. Fevers are frequently caused by a long continued exercise, or by powerful emotions, of the mind.

Phthisis is frequently induced in persons of a consumptive tendency, by constantly anticipating it. Cholera is not only induced, but its fatality increased, by the despondent mind. Disappointments cause loss of appetite, fever, changes of the urine, &c.; diarrhæa, pains in the head, &c., may be caused by mental impressions. One of the most remarkable instances of the influence of the mind over the body, in producing morbid changes, is related by Dr. Cheyne, of Col. Townsend, who could at any time produce all the phenomena of death, not only arrest-

ing circulation, respiration, &c., but would remain in this state for hours, and then by an effort of the will, be restored to his natural condition.

He carried his last experiment too far, and it resulted in actual death. The limits of this work will not allow me to enter further into the investigation of the subject. The above facts are sufficient to give some idea of the influence of the mind over matter, and the physician who would treat disease skilfully, must seek to investigate such facts, and as far as possible, to understand their cause and study their effects. The condition of the mind, whether diseased or healthy, with all its manifestations, should be taken into account. The condition of the skin, the temperature of the body, the temperament of the patient, his peculiar idiosyncrasies, together with his habits of living, occupation, external influences, &c., should be considered, before he assumes the responsibility of administering medicine, for the removal of disease.

## PART II.

THE PRINCIPLES AND PRACTICE OF  
SURGERY.

## INFLAMMATION AND ITS EFFECTS.

IN another portion of the work I have given a full account of the general principles of inflammation, as well as many of the morbid changes which occur during the inflammatory process. It now remains for me more fully to consider the effects of the disordered actions that have immediate relation to surgery.

## MORBID GROWTHS.

On making a minute examination of the structure of morbid growths, we find them composed as follows:—1st, Molecules and Granules; 2d, Nuclei; 3d, Cells; 4th, Fibres; 5th, Tubes, (especially vascular ones;) and 6th, Crystals, or irregular masses of mineral matter. Now no combination of these elements will serve to characterize morbid growths, such as fibro-molecular, fibro-nucleated, fibro-cellular, fibro-vascular, etc., for the simple reason that tumours, very unlike in their external characters and natures, may be composed of the same elements. For instance, cystic, glandular, cartilaginous, and cancerous growths, are all fibro-cellular. It is not, then, from its showing the existence of one or more elementary structures, but from its pointing at their *mode of arrangement*, that the microscope is destined to be of infinite importance in pathology and diagnosis. Neither will chemical composition furnish us

with trustworthy means of distinguishing morbid growths, as many of them contain albuminous, fatty, pigmentary, and mineral principles conjoined, although in variable proportions. The best classification, therefore, is one founded on our knowledge of the compound textures of the growths themselves—assisted, as far as varieties are concerned, by their similitude to well-known objects, which have long been received in pathology as standards of comparison. Thus the following arrangement appears to me capable of embracing all the known classes of primary growth:—

- |                             |   |   |                    |
|-----------------------------|---|---|--------------------|
| 1st. Fibrous growths,       | . | . | Fibroma, or Inoma. |
| 2d. Fatty growths,          | . | . | Lipoma.            |
| 3d. Cystic growths,         | . | . | Cystoma.           |
| 4th. Glandular growths,     | . | . | Adenoma.           |
| 5th. Epithelial growths,    | . | . | Epithelioma.       |
| 6th. Vascular growths,      | . | . | Angionoma.         |
| 7th. Cartilaginous growths, | . | . | Enchondroma.       |
| 8th. Osseous growths,       | . | . | Osteoma.           |
| 9th. Cancerous growths,     | . | . | Carcinoma.         |

All these primary divisions are susceptible of being subdivided according to the presence of particular substances, or to fancied resemblances which have received names. Thus the varieties of the above kinds of growth have long been determined by their substance presenting greater or less similitude to well-known objects, such as water, lard, flesh, brain, etc., as follows:—

- |                     |   |   |                |
|---------------------|---|---|----------------|
| 1. Like water,      | . | . | Hygroma.       |
| 2. " black pigment, | . | . | Melanoma.      |
| 3. " green pigment, | . | . | Chloroma.      |
| 4. " blood,         | . | . | Hæmatoma.      |
| 5. " glue,          | . | . | Colloma.       |
| 6. " lard,          | . | . | Steatoma.      |
| 7. " gruel,         | . | . | Atheroma.      |
| 8. " honey,         | . | . | Meliceroma.    |
| 9. " cholesterine,  | . | . | Cholesteatoma. |

- |     |             |   |   |   |                  |
|-----|-------------|---|---|---|------------------|
| 10. | Like flesh, | . | . | . | Sarcoma.         |
| 11. | " nerve,    | . | . | . | Neuroma.         |
| 12. | " brain,    | . | . | . | Encephaloma.     |
| 13. | " marrow,   | . | . | . | Myeloma.         |
| 14. | " marble,   | . | . | . | Scirrhomia, etc. |

It is easy to understand how varieties may in this way be multiplied, and how new names may be scientifically given to rare forms of tumour, for instance *Symphonoma*, or tubular growth, described by Henle; *Cylindroma*, by Billroth; *Heteradenoma*, by Robin, &c., &c.

Farther varieties have been made to express one or more combinations of these elements, and hence the terms *Fibrocystic*, *Fibro-cartilaginous*, *Fibro-Sarcoma*, *Osteo-Sarcoma*, and so on. Indeed, this kind of nomenclature admits of farther extension, and such terms as *Fibro-epithelial*, *Angiocystic*, *Cystic-adenoma*, *Osteo-fibrous*, and so on, might be employed with advantage. When, also, growths have a certain resemblance to, or largely partake of the character of the structures and substances referred to, while their real nature is not absolutely or altogether the same, the words *Fibroid*, *Cystoid*, *Adenoid*, *Chondroid*, *Osteoid*, *Colloid*, *Hæmatoid*, *Fungoid*, *Encephaloid*, *Myeloid*, *Cancroid*, etc., have been employed.—(Bennett.)

Besides the formation of these abnormal structures as the result of inflammation, we have the degeneration of the exudation into pus, and the formation of abscesses.

### ABSCESS.

The term Abscess, (from *abscedo*,) denotes, that parts which were in contact, have become separated; and, in pathology, implies a collection of pus in any tissue of the body. Abscesses are divided by surgeons into eight varieties, viz.: acute and chronic, hot and cold, lymphatic, diffused, metastatic, and puerperal. They are formed by the secretion of purulent matter from inflamed capillaries, confined by a

wall formed by the effusion of coagulated lymph which consolidates the surrounding tissues, and prevents a diffusion of pus.

#### SYMPTOMS.

In acute or phlegmonous abscess, the part will be inflamed and swollen, with a throbbing, pulsating pain: as the pus accumulates and approaches the surface, the part becomes soft and fluctuating. As the abscess advances, some portion of the swelled surface becomes more prominent, and more or less livid. In the majority of cases, suppuration takes place,—giving exit to the hitherto confined pus. In rare cases, the swelling disappears by the pus becoming absorbed.

Chronic abscesses are formed by some gland, or some portion of the subcutaneous cellular tissue becoming irritated, and frequently with not very prominent constitutional symptoms—except swelling. They soften and discharge a curdy, puriform fluid, or they frequently extend along some fascia, or burrow deep into the adjacent tissue, and remain a long time without opening. The cold, or lymphatic abscess, mostly occurs in persons of a scrofulous habit, and appears in the iliac, fauces, groin, or axilla. The patient usually feels but little uneasiness, and does not suffer much pain, but suddenly finds a large, fluctuating tumour in some of the parts mentioned above, which, in some cases, opens, but more frequently remains indolent, and manifests but little disposition to suppurate. If opened, it will be found to contain a large quantity of thin, unhealthy pus.

A diffused or puerperal abscess occurs mostly in women, after confinement, in various parts of the body,—commonly in connexion with phlebitis, or inflammation of the veins. They may be from a pin's head, in size, to an abscess capable of holding a pint or more of pus. These abscesses may form in any part of the body, but are most numerous where there is the greatest number of absorbent glands. The pus



formed in these abscesses is liable to gravitate and accumulate in the more dependent portions of the body, producing disturbance of the circulation, &c.

#### TREATMENT.

The indication to be fulfilled in the treatment of abscess, is to prevent the formation of pus—to evacuate the pus when formed, and to heal the parts, so as to prevent farther secretion of pus. To prevent the formation of pus, all irritating substances should be removed, such as pieces of dead bone, &c.; cold packs should be applied, with alkaline baths, to the surface, followed by brisk friction.

The bowels should be moved freely by a purge of anti-bilious physic, and cream of tartar, or podophyllin; tonic and alterative syrups should be given, and there should be a free use of diuretics, such as marsh-mallow, clivers, eupatorin purpurin, &c. If, notwithstanding these means, it is evident that pus is about to form, the treatment should be changed.

Warm flax-seed or elm poultices, wet with the tincture of arnica or lobelia, should be applied to the part, and changed frequently. The patient should take of equal parts of the syrup of chimaphilin and balmony, one tablespoonful four or five times a day—also, small doses of precipitate carbonate of iron and lupulin, three or four times a day. The surface should be frequently sponged in warm lye-water, and the diet should be nutritious and easily digested.

When pointing occurs, the pus should be discharged. There are three ways by which this may be accomplished, viz.: by incision, by tapping with the trochar, by making an aperture in the cyst with caustic. In acute abscess, the incision is preferable. It should be made either at the point where fluctuation is most distinct, or at the most dependent position of the abscess. It should be made by passing a sharp-pointed bistoury or lancet into the tumour a

sufficient depth to reach the pus. After the abscess is evacuated, it should be injected with warm soap-suds, followed by a strong solution of myrrh and tincture of arnica.

In chronic abscess, the opening should be made by means of caustic potassa. Should the bone be diseased, the abscess should be injected with a strong solution of phosphate of lime, alternated with sulphate of iron, and sulphate of zinc. The patient should take phosphate of iron, chloride of soda, and quinine. If the abscess occur in the extremities, and is connected with a scrofulous diathesis, the part should be supported by a bandage, frequently wet with a strong solution of salt and water, and the system should be well supported by tonics and antiseptics.

A valuable syrup in these cases, may be made as follows:—Take *chimaphila umbellata*, or *pipsissewa*, two ounces; chamomile flowers, one ounce; rock-rose, two ounces. Make one pint of syrup,—add ten drops hydrocyanic acid. Dose, one tablespoonful three times a day.

As to the treatment of chronic abscesses, Druitt remarks, if the abscess is so large that the exposure of its cavity would lead to the evil consequences that have been enumerated, or if it is connected with disease of the spine, or other bone, (as in case of *psoas* abscess,) the following plan should be resorted to with a view of inducing a contraction of the sac, and of diminishing the danger from a permanent opening: should one be established subsequently, a small puncture should be made at the most depending part of the tumour. It may be made valvular, by drawing the skin a little to one side before introducing the bistoury; but this is not of much consequence. As much matter as flows spontaneously should be permitted to escape, and then the puncture should be carefully closed by lint and plaster, and the patient be kept at rest till it is healed. During the flow of the matter the greatest care ought to be taken to prevent the admission of air into the sac. At the expira-

tion of ten days, or a fortnight, when it is nearly re-filled, a second puncture should be made, (but not too near to the former,) and should be healed again in like manner. This operation should be repeated at the proper intervals, taking care never to let the abscess become so distended as it was before the previous puncture,—and using moderate support and bandages in the intervals. Thus, in fortunate cases, these repeated, partial evacuations, combined with proper constitutional measures, will cause the abscess gradually to contract, so that it either becomes completely obliterated, or degenerates into an insignificant fistula. This method of treatment was introduced by the late Mr. Abernethy. He, however, recommended as much as possible of the matter to be evacuated at each operation, instead of allowing it to run spontaneously; which latter method is much better calculated to preclude the admission of air, and avoids all irritation of the cyst by rough handling or squeezing.

But if air have gained admission into the cavity of the abscess, and the pus have become putrid, and prostration of strength, and dry, brown tongue show their influence on the system, then the indications plainly are, to make free openings and counter-openings, so as to prevent all lodgement of the putrid pus; and to wash out the sac occasionally with injections of warm water, containing a very little of the solution of chloride of soda. At the same time the general treatment of typhoid fever must be re-adopted, and the strength be supported by wine, nourishment, opium, &c.

Previously to giving the detailed treatment of the farther processes and changes produced by inflammation, as well as the removal of various heterologous structures, as referred to in the classification and arrangement of tumours, I purpose to proceed to the consideration of operative surgery, and the apparatus essential in this department.

## DRESSINGS.

By most authors Surgery is divided into Minor Surgery, including all the lesser operations; and Major Surgery, which includes all the capital operations. This division, which has been long maintained, is purely arbitrary, as there are no natural divisions whereby minor surgery can be distinguished from that of major. Without attempting, however, to discuss this subject, I propose to offer a few suggestions relative to the duties of the general surgeon; among the first of which is a thorough knowledge of the applications and dressing of injuries.

The principal object of all dressings is to afford relief to the injured parts. The articles, or means used for the purpose, are known as "Apparatus for Dressing." These may be divided into two parts:—1st. The instruments for dressing. 2d. The materials used as the dressing. The instruments used for dressing injuries are usually those contained in the ordinary pocket case, which should consist of ring forceps, simple forceps, seissors, probes, directories, spatulæ, bistouries, male and female catheter, portæ eaus-tie, curved needles, ligatures, tenaculum, and abscess lances. Towels, razors, basins, sponges, buckets, and such other things as are necessary for the removal of all previous dressings, and facilitating the operation of the present one, may also be included under the head of instruments.

Under the second head, materials used for dressings consist of lint, charpie, cotton, tow, compresses, Maltese cross, shields for amputations, poultices, plasters, adhesive strips, ointments, collodion, cataplasms, emollient, strengthening, astringent, fomenting, and narcotic poultices, water dressings, bandages or rollers, splints, and a great variety of other apparatus.

*Lint.* Lint is a delicate tissue, or mass, prepared by seraping soft old linen. There are two kinds; one called

domestic, the other patent lint. The latter can be purchased at most drug-stores. The former may be made at a moment's warning, by seraping old linen with a sharp knife.

*Charpie* is a substance much employed by surgeons, especially the French. It is made by collecting the threads torn from four to five inches square. The linen from which charpie is to be made should be new, as it is said that that which is made from new linen absorbs pus, blood, and suppurative matter, more readily than that which is made from old linen. This dressing is used principally to keep open sinuses, fistula, and as outer dressings. Charpie and lint are made into various forms, which have received various names, such as the *pledget*, *roll*, *tent*, *mesh*, *bullet*, *tampon*, etc., etc.

The *pledget* is composed of several layers of charpie formed by collecting the threads, and laying them parallel to each other, with ends folded underneath, the whole being flattened between the palms of the hands, or arranged in other shapes, according to the requirements of the application.

The *roll* is a mass of charpie, or lint, made by rolling its fibres longitudinally between the hands, so as to make an oblong mass, which may be tied in the centre; the ends being brought together, it forms a sort of a cone; used mostly for arresting hemorrhages of deep-seated vessels, pressure, etc., etc.

The *tent* is a conical mass of charpie, or lint, twisted by the fingers, so as to give it a spiral form, of which the base is the part at which the fibres are doubled on themselves, used also for similar purposes as that of the *roll*.

*Bullets* are little balls made by rolling charpie, or lint, until it acquires a round form. They are used for the purpose of absorbing the pus in deep wounds. When several are used for arresting hemorrhage, they are called *tampon*.

*Pellets* are large bullets, surrounded by a piece of soft linen, the edges of which are brought together and tied; also useful as a compress.

*Cotton* and *tow* are usually employed as an outer dressing; they are inferior, however, to charpie or lint, but used on account of their cheapness.

*Compresses* have received several names, such as square, oblong, triangular, cribriform, Maltese cross, half Maltese cross, single and double splint compress; perforated pyramidal compresses. These names have reference to the form of the compress, and each form has its use and advantage in the treatment of different surgical cases.

*Retractors.* Retractors are of two kinds; two tails, and three tails. The two-tail retractor is made by splitting an oblong piece of muslin, used as a shield to the soft part in amputations, etc., etc. The three-tail retractor is made by splitting a piece of thick muslin into three slips. It is used in amputations, where there are two bones to be divided, as in the forearm, leg, etc.

*Adhesive strips* are pieces of linen, upon which some adhesive plaster is spread. [The adhesive plaster spoken of in the Eclectic Medical Journal, prepared by Collins & Co., I regard as superior to any I have seen.]

*Collodion*, or *liquid adhesive plaster*, is a preparation of gun cotton and ether, first introduced by Dr. Maynard, of Boston, Massachusetts, used in many cases in place of adhesive strips.

*Cataplasms*, or *plasters*, are made of various kinds of substances. Emollient poultices are made by wetting sufficient slippery elm, flaxseed, or comfrey, in warm water, and stirring it until it is of a proper consistence. They should never be applied too thick or too warm. The warmth of the poultice should be the same as that of the part to which it is applied.

*Astringent poultices* are mostly used where there is extensive sloughing, and where there is great weakness of the part caused by an extensive injury. An excellent astringent poultice is made by taking equal parts of pulverized bay-

berry and geranium maculatum, boiling it in sweet milk, and stirring in sufficient slippery elm and flaxseed to form it into a poultice. There are also other astringents which may be used. Stimulating poultices may be made by adding a small amount of podophyllum peltatum, or sanguinaria Canadensis, to a small quantity of pulverized flaxseed or slippery elm. These poultices are valuable where the parts are indolent, and where suppuration is desired.

*Fomenting Poultices*, which are useful in hastening suppuration, may be made by stirring pulverized slippery elm into brewers' yeast, or in the event of its absence a strong decoction of hops thickened by means of slippery elm and flaxseed. It forms a very soothing fomenting poultice, and is useful in hastening suppuration, and where there is danger of gangrene or mortification.

This poultice, in connexion with equal parts of pulverized charcoal, frequently wet with equal parts of alcohol and water, forms a most valuable antiseptic fomenting poultice. In cases where there is a tendency to mortification of the part, a strong decoction of comptonia asplenifolia, or sweet fern, should be thickened with equal parts of charcoal, gum, myrrh, and bayberry, applied warm and frequently changed. It has been known to arrest gangrene almost immediately.

*Compound Poultices*.—In some cases it will be found advisable to apply the compound poultice, especially where there is a great amount of pain and tenderness, or deep-seated injuries, liability to gangrene, mortification, &c., or where pus is forming in the deep-seated tissues, and is producing severe constitutional disturbance.

Compound poultices are such as include the properties of fermenting astringents and anodynes. An excellent poultice of this class may be made by making a strong decoction of hops, polygonum punctatum, or smart weed, comptonia asplenifolia, or sweet fern, and thickening it with equal parts of pulverized slippery elm, gum, myrrh, and bayberry



bark. The poultice should be frequently wet with equal parts of tincture opium and lobelia, and changed as often as indicated. This poultice has many advantages over simple poultices. It prevents mortification, allays pain, hastens resolution, and promotes a healthy condition of the surrounding tissues.

*Mustard Poultices.*—Mustard poultices are made by wetting a sufficient quantity of pulverized mustard with equal parts of water and vinegar, mostly used for the purpose of producing re-action, &c. To be applied to the spine, epigastrium, calves of the legs, feet, etc., etc.

*Water dressings, or irrigation,* may be of a great many varieties, such as the application of hot or cold packs to the part; ice water, applied in the form of a pack, frequently changed; cold or warm water running constantly on the part, by means of the syphon, etc., etc.

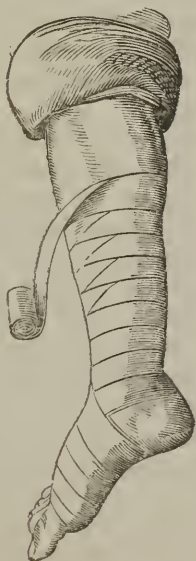
This form of dressing wounds has become very general, and is well adapted to a great variety of injuries. Hot water is mostly applied where the parts have been severely injured, and followed by great debility. Cold water is used where there is too violent a re-action of the part, for the purpose of subduing inflammation, and preventing an extensive supuration, &c., &c.

*Bandages, or Rollers.*—Bandages, or rollers, consist of flannel, linen, muslin, calico, gum elastic, or other substance, of various widths, rolled upon itself in a firm mass. Bandages may be divided into two kinds:—First, simple; second, compound.

The simple bandage is prepared from a slip of muslin, of the requisite length and width, by tearing it from the piece, and then winding it into the form of a cylinder; which may be done by the hand, or by a machine. When intended for the body, it should be fourteen yards long, and about three and a half inches wide; when for the extremities, it should be ten yards long, and two and a half inches

wide; when for the head, six yards in length, by two inches in width. Rollers are made into what is called single and double-headed. The single-headed roller is rolled from one end exclusively. The double-headed roller is made by rolling from each end. The single-headed roller, when applied to any part of the body, should be held between the thumb and fingers of either hand, and pressed by the fingers firmly against the palm, so as to prevent the cylinder from slipping out of the hand as it unrolls, as it is apt to do when the internal surface is the part first applied. It should be retained on the part by pressure of the fingers, until one

FIG. 34.



or two turns are made around the part to which the bandage is applied, and until it is firmly fixed; after which the roller may be properly carried up the limb, as seen in figure 34.

Bandages have been divided into circular, oblique, spiral, figure 8, spica, recurrent, uniting, dividing, expulsive, retaining, etc.

The circular bandage is one which is formed by the horizontal turns of the roller, each turn of which partially overlaps the one which preceded it. The oblique bandage turns gradually as it ascends the limb, and passes obliquely to the axis. The recurrent bandage is one in which the folds run back to where they first started. The uniting bandage is one which is used for the purpose of uniting wounds. Dividing bandages are those which are used to prevent the formation of cicatrices, in the treatment of burns or wounds attended with great loss of substance. Compressing bandages are those used in cases where there is great swelling. Expelling bandages are those used to expel pus from deep-seated abscesses; retaining bandages, to retain dressings, etc.

Dr. Hennen remarks:—"Dexterity in the application of bandages is so necessary, that no physician can properly apply them, unless he has had much practice;" and he thinks that unless the bandage is properly applied, it had better be omitted altogether. He also remarks, that "the practitioner's reputation is liable to considerable injury; and that he will be sure to suffer from the judgments of those around him, if he shows ignorance of this important duty." Referring to the application of bandages, he says:—"The majority of persons are very attentive to the manipulations of any workman, and can soon judge, and judge correctly, whether he is acquainted with the business; consequently they do not hesitate to exercise their criticism to its fullest extent in the case of the surgeon; and when their opinion of his ignorance is confirmed by the patient's continued suffering, they are ever ready to disseminate it widely." "On the contrary, when a bandage lies smooth and regularly on the limb, when the patient is relieved from previous torture, and the part assumes the neat ap-

pearance that always follows the visit of an experienced dresser, the confidence of friends is raised, and his subsequent visit is looked forward to with confident anticipations of relief." "Surgeons who from want of practice cannot produce the neat appearance of a well-applied bandage, are frequently induced, in order to escape the remarks so often made on this point by those around the patient, to resort to the wetting of the roller, in order to cause it to adapt itself to the part more readily. But this practice should never be permitted, except in the treatment of dislocations, unless we would wish to expose the patient to the risk of mortification, as it is impossible for any one to calculate how much a wet roller will shrink in drying, and consequently how great a degree of pressure it will make on a part after we have left it." Great care should be observed in the application of bandages, whether wet or dry, that they are not applied too tight, as the one applied in the first instance may not be so tight as to interfere with the circulation, but will when left a short time become so. Great mischief has been done by the improper application of bandages; the circulation being interfered with, the vitality of the limb destroyed, and its amputation rendered necessary, and in many cases the life of the patient has been sacrificed. The practitioner should ever bear in mind that the object of the bandage is for the purpose of maintaining the apposition, and supporting the parts. Where there is any doubt with regard to the tightness of the bandage, or its liability to produce pain and interfere with the circulation, it should be frequently examined, and in such cases removed and re-applied.

#### DIRECTIONS FOR APPLYING THE SPIRAL BANDAGE.

This bandage is the one most frequently employed in the treatment of affections of both extremities, and the chest;

its turns ascend the limb slowly, and are close together, covering the part most effectually, and rendering valuable support, as well as most thoroughly protecting dressings. Each turn of the spiral bandage should cover from one-third to one-half of the preceding turn. In its application to a limb, which is of a conical shape, in its passage from the apex to the base one edge of the bandage is liable to rest firmly on the limb, while the other edge is loose. To obviate this the roller should be half folded on itself; or a doubling made, which is called a reverse. To prevent uneven pressure, which would occur from bad reverses, much care should be taken that the reverse be short, and as smooth as possible. Dr. Smith gives the following rules for these reverses:—"Hold the roller in the position in which it is generally applied; that is, either by its body or its two extremities, the hand being in a state of supination. Apply the initial extremity to the limb, and continue to make simple spiral turns until you approach the enlarged portion of the limb; then apply a finger of the free hand to that portion of the bandage which is already in contact with the limb, not to assist in forming the reverse, or to hold it down, but simply to prevent the turns already applied from slipping, or becoming relaxed while the reverse is being made." He also states that "no more of the bandage should be unrolled than will enable you to separate the cylinder a short distance, say four or six inches from the limb. The portion of the bandage which is between the fingers should be perfectly slack; then turn the hand holding the cylinder, from supination into decided pronation, by a simple motion of the wrist alone, without moving the fingers from the cylinder, taking special care not to make traction, or to sink the cylinder below the level of the limb, till the fold or reverse is made, when it again may proceed up the limb, it being recollected that each turn should be spiral, and only cover about one-third of that which pre-

eedes it, keeping each turn and each reverse parallel with its fellow."

*The Crossed, or Figure of Eight Bandage.*—This bandage is useful in covering joints, and other portions of the body, where considerable pressure is required. They may be either single or double-headed.

*Barton's Bandage, or Figure of Eight Bandage of the Jaw.*—This bandage is named after Rhea Barton, of Philadelphia, who first used it with much success in the treatment of fractures of the lower jaw. It is formed by a single-headed roller, from five to eight yards in length, and from an inch and a half to two inches in width. It may be applied in the following manner:—The initial extremity should be placed just below the prominence of the occiput, or back portion of the head, and then continue the roller obliquely over the centre of the parietal bone across the junction of the *coronal suture*, and over the zygomatic arch, and under the chin. Carry the bandage in the same direction, and over the same points on the opposite side, until you reach the point where you commenced, and then pass the bandage obliquely around and parallel to the base of the lower jaw, carrying it over the chin, and continue the same course on the other side until it ends where you commenced. A pin should be placed in the bandage at the vertex, and the number of layers should be repeated in a similar manner, until the bandaging is complete.

*The Figure of Eight Bandage*, for the posterior portion of the chest, requires a roller about six yards long, and two and a half to three inches wide. It may be applied to the patient sitting. Carry the initial extremity of the roller around the superior part of one arm, say the right arm, and make three or four spiral reverse turns, from before backwards, and from within outwards from this shoulder, passing obliquely over the back to the left axilla, the shoulder being well forced backwards; ascend in front, and over



the shoulder; pass over the back to the right axilla, over the front of the axilla, and around the back, and over the left axilla, over the front to the back, over the back to the right axilla. This course should be continued until the roller is nearly or quite exhausted, when a few turns directly around the body should be made. The anterior figure of eight bandage is applied in a similar manner, and both of these bandages are valuable for the purpose of retaining compresses, dressings, etc., etc.

*The Spica, or Figure of Eight Bandage of the Pelvis.*—This bandage requires a single-headed roller, ten or twelve yards long, and about three inches wide. It is mostly used to retain dressings, compresses, etc., etc. It may be applied by placing the initial extremity of the bandage over one of the iliac creases, and making two or three horizontal turns around the pelvis, in order to fix the point of the bandage; turning from right to left, and from before backwards, if for the right groin, and the reverse if for the left; arriving in front of the pelvis, descend to the inside of the thigh, and turn around the back part; ascend on the outside, to cross the first turn, and then to the ilium, across the back, and around the pelvis, to follow the same course, until the cylinder is mostly exhausted. When the whole may be fastened by a circular turn around the pelvis, where it is necessary to apply the spica bandage to both groins; it may be done by means of a double-headed roller applied to the front of the abdomen in a line with the crest of the ilium, and each head be carried so as to cross behind the back to the crest, and then let each head descend and pass under and behind, and on the outside, to run—one to the right, and the other to the left iliac crest, and thence around the back, following the same course. The spica bandages are of the most convenient kind, and are used for retaining dressings, &c., to nearly all portions of the body.

*Knotted Bandages.*—These bandages have received their



name from their having knots, like packers' knots, and are formed by double-headed rollers. They are intended to make firm compression on the principal portions of the body, and especially upon bleeding vessels of the head. The knot bandage of the head is frequently applied for the purpose of arresting hemorrhage from the temporal artery. To apply it, take a double-headed roller, five yards long, and two inches wide; place the body of the bandage over the compress covering the wounded artery, and conduct the two heads—the one before, the other behind, to the opposite temple, where they should be reversed, in order to return to the point of departure; and then give them a turn once or twice, so as to enable one to pass over the summit of the head; the other underneath the chest, to the sound side, when they may be reversed, and from thence conduct them in the same course upon the wounded vessel; repeat these turns of the bandage two or three times, and knot them firmly each time; let each knot be placed behind the one first formed; the bandage being then conducted, one head over the vertex, the other underneath the chin, and is terminated by a few circular turns of the head and occiput.

*Recurrent Bandages.*—Recurrent bandages are formed by convolutions and recurrent turns, which make a kind of cap for the part to which they are applied. These bandages, though occasionally used, are very liable to become loosened, and they are not so valuable on that account as many other forms of bandaging. They may be made of either single or double-headed rollers.

#### COMPOUND BANDAGES.

These forms of bandages include a variety of most important appliances for the retention of dressings, &c.

*Single T Bandage.*—The single T bandage is so named from its shape. It is composed of a horizontal strip, which

passes around the part to be covered, leaving enough to tie a bow knot, and a perpendicular piece. The perpendicular piece should be half the length of the horizontal one, and firmly sewed to it. Each portion should be rolled into round cylinders. The T bandage, if designed for the head, ear, or thighs, must be composed of sufficient length to allow each portion to pass several times around the parts. The double T bandage is made like the single one, with the exception that there are two horizontal pieces, instead of one. The perforated T is constructed as the single T bandage, with the exception that the perpendicular strip is much wider, and has several holes perforated through it, for the purpose of inserting the fingers, toes, &c.

*The Slit Bandage.*—The slit bandage is composed of a roller three or four yards long, one inch wide, rolled into two heads, and of two small compresses, which are to be placed on the cheeks near the angle of the mouth. This bandage should be applied by placing the body of the roller on the back portion of the head, about the occiput; carrying each cylinder under the lower part of the ear over the malar bone, and over the compresses, make a slit in one bandage large enough to pass the other cylinder through it. Continue this process until the parts are sufficiently protected.

#### SLINGS.

Slings are formed of pieces of muslin, of various lengths and widths, with the ends slit into two or more pieces, according to the purposes for which they are used. They are used for the purpose of retaining poultices and appliances to the various parts of the body, when but little pressure is required. They are also used for suspending the arms and legs, in cases of fractures and other injuries.

*Suspensory Bandages.*—They are composed of small pieces of cotton, formed into a bag of sufficient size to contain a

part or the whole of organs, which they are designed to support.

*Lace bandages, stockings, &c.*, are also used in the place of the roller, for the purpose of protecting and compressing various portions of the body.

*Handkerchief Bandages.*—M. Mayor has introduced a method of applying a square piece of cotton to the various parts of the body as a substitute to the various forms of bandages, which I have already enumerated. He claims for his method of applying the handkerchief, or piece of muslin, that it serves all the purposes for which all other bandages are applied, and that it is superior, inasmuch as the material is always at hand, and can be applied by persons of less experience than is required in the application of the ordinary rollers. M. Mayor makes four modifications of the handkerchief:—1st, the oblong, or cravat-shaped; 2d, the triangular; 3d, the cordiform; and fourth, square.

The first application of the handkerchief bandage is that which is applied to cover the entire head, and is called the square cap of the head. This is to be applied so as to draw the ends down the side of the face, and tie them under the chin. Draw the other two ends backwards, and tie at the occiput. This is used for the purpose of securing dressings. M. Mayor goes on to enumerate some fifty or more methods of applying this form of bandage to various injuries in all portions of the body. But as the application consists in adjusting the handkerchief to the parts, and securing it by tying the ends, it is not essential to enter into the details of the various applications as described by Dr. Mayor.

#### INSTRUMENTS USED IN MINOR SURGERY.

The instruments used in minor surgery consist of those which are found in the ordinary pocket-case, such as the various kinds of bistouries, scalpels, tenaculums, (see figs. 35—46,) scissors, silver probes, directories, artery forceps, catheters, caustic-holders, needles, silk, silver wire, bull-dog

forceps, exploring needle, exploring trochar, spatula, canula, etc., etc.

FIG. 35. FIG. 36. FIG. 37. FIG. 38. FIG. 39. FIG. 40.

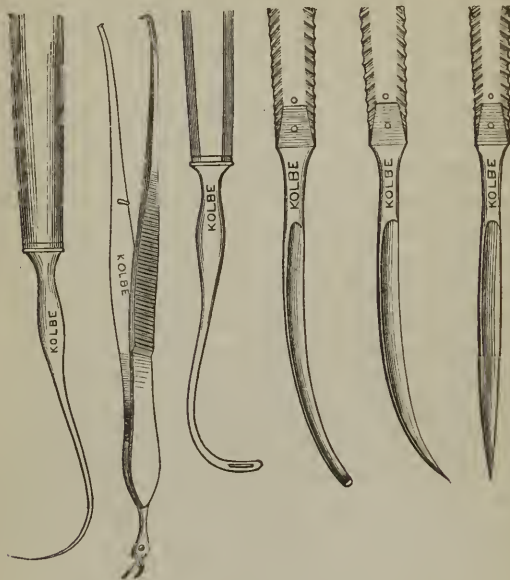
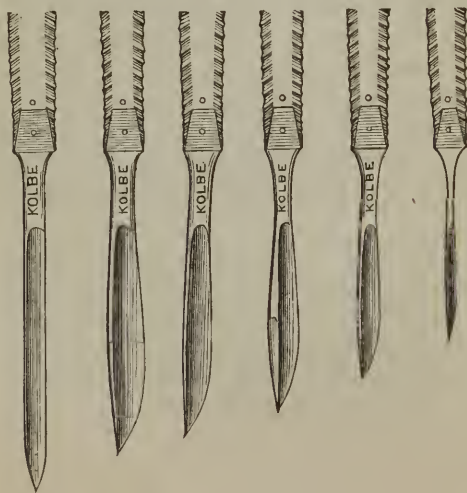


FIG. 41. FIG. 42. FIG. 43. FIG. 44. FIG. 45. FIG. 46.



*Incisions.*—Ordinary incisions are made with the scalpel or bistoury. For this purpose the instrument should be held as a pen in writing, or it may be grasped by the thumb, first and second fingers, with the handle of the instrument resting in the palm of the hand; or the index finger may be applied to the back of the handle, by a slight depression of its extremity. The bistoury may be substituted for the scalpel, and used in the same manner. It is commonly used where the director is required; the director being first introduced, and the instrument passed along the groove. This is especially useful in laying open sinuses, and in minute dissections. Incisions may be made from without inwards, or from within outwards. They should be made along the course of vessels, nerves, and muscles.

*Union of Wounds.*—To secure the union of wounds, the edges should be brought firmly together, and maintained by means of adhesive strips or sutures. Sutures should not be used when the parts can be maintained in apposition by the strips.

*Sutures.*—For the application of sutures, the needle and thread are used. The best needles, for this purpose, are those which are about two inches long, and straight two-thirds of their way—the balance being gently curved, with two cutting edges. A variety of other shaped needles, however, has been recommended and used by different surgeons.

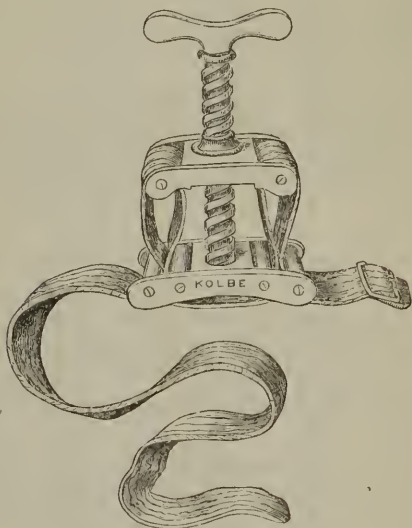
*Materials for Sutures.*—The materials used for sutures may be either of animal, vegetable, or metallic substances. The most reliable suture, however, is that which is known as dentists' silk. The silver wire and cat-gut suture are frequently used.

*Interrupted Suture.*—An interrupted suture is made by passing a needle, armed with a ligature, from without inwards through the right lip of the wound, about one-third

of an inch from its margin. Being continued, it should enter the left lip from within, about the same distance from the edge, and pass outwards, at exactly the opposite point of insertion in the right. All the sutures should be introduced before any are tied, after which they are all to be tied with the common reef knot, and the ends closely clipped.

*Continued Suture.*—This suture is made by passing the needle diagonally through the lips of the wound, leaving the thread uninterrupted. It is mostly used in wounds of the intestines.

FIG. 47.



*Quill Suture.*—This suture is formed by passing it double through the lips of the wound, as in interrupted suture, but at a greater distance. The ends are tied over a quill, or some other substance which serves the same purpose.

*The Twisted Suture.*—This suture is made by inserting

steel or silver needles through the wound, and twisting the suture around it in the shape of a figure eight.

*Hemorrhage.*—To prevent hemorrhage, previously to and after operations, ligating the vessels, and pressure are used; manual pressure may be made by pressing the fingers firmly on the artery above the point of hemorrhage, or some hard substance may be caused to compress the vessel. The tourniquet, however, is the instrument most generally used for compressing the vessels, and the arrest of hemorrhage. (See fig. 47.)

Twisted handkerchiefs, or strips of muslin, are also sometimes used for this purpose. During the operation the hemorrhage is most promptly controlled by pressure from the assistant's finger, or the arterial clamp may be used.

FIG. 48.



*Ligatures.*—The ligature is also used for the purpose of controlling arterial hemorrhage. It can be applied by hook-



ing up the artery with the tenaculum, or a pair of arterial forceps. (See fig. 48.) The arteries should be separated from the surrounding tissues, and the end secured by means of the surgeon's knot. Cold and styptics are also used for the purpose of arresting hemorrhage.

### ANÆSTHETICS.

The only anæsthetics in common use are chloroform and sulphuric ether.

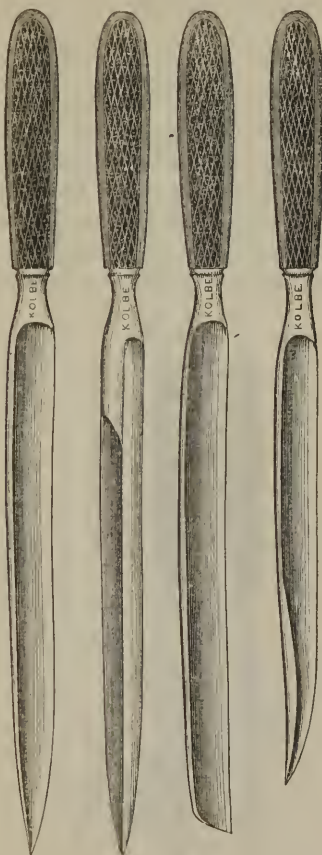
Chloroform is frequently found in the shops adulterated with alcohol, oils, and ether. Oils are detected by adding a few drops of sulphuric acid, which gives the chloroform a yellowish appearance. If it contain alcohol, it will turn a milky colour upon the addition of water. In order to obtain the full benefit of chloroform, it is essential that it should be administered in its pure state. Sulphuric ether is also found adulterated with volatile oils, sulphuric acid, &c. It can be purified by washing it with lime-water.

The best method of administering chloroform, is first to empty the stomach by means of a mild emetic; second, loosen the clothes about the neck, chest, and abdomen; third, see that the patient is provided with fresh air during the inhalation; and, provided the patient be of a feeble habit, a tablespoonful of brandy should be administered. The patient being thus prepared, he should be placed upon the table, and instructed to empty his lungs. A napkin should be impregnated with a dram or so of chloroform, and held over the nose at the distance of from two to three inches, and gradually brought nearer until it is within about half an inch, beyond which it should not be carried. The napkin should be frequently wet, and the assistant most vigilant in observing that the patient has plenty of air. As soon as sensibility has entirely disappeared, the operation should be commenced.

In the administration of sulphuric ether a bell-shaped sponge should be used, with an aperture at the base suffi-

cient to admit air. It should then be saturated with ether, and held firmly over the patient's mouth and nose, and the

FIG. 49.



process continued until sensibility is lost, as in the case of chloroform.

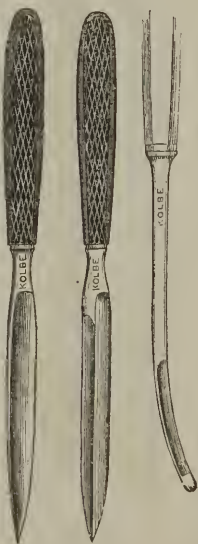
*Resuscitation.*—Resuscitation can be produced by re-

moving the anæsthetic, allowing the patient plenty of fresh air, dashing cold water on the face, chest, and spine, and, if necessary, volatile stimulants, electricity, and chafing friction, may be had recourse to.

### WOUNDS OF ARTERIES.

Wounds of arteries may occur, either with or without an immediate destruction of their coats. An artery may be wounded by a sharp or blunt instrument, when its coats will be either cut or torn; or it may be so injured by contusion as to destroy the vitality of its coats, and a solution of its continuity will occur by degrees. In either event hemorrhage will occur. In the first instance the hemor-

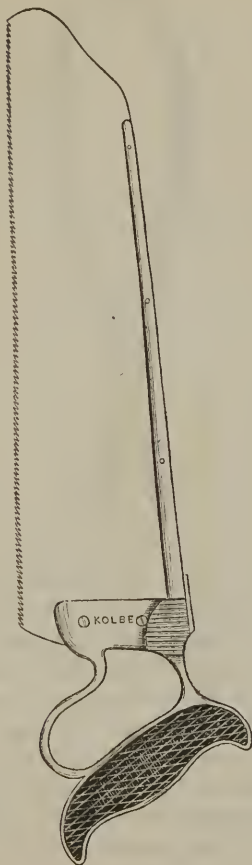
FIG. 50.



rhage will be of an active character, and occur immediately after the injury; in the latter it will be secondary, and will

not occur until after the arteries have become disorganized. If the wounded artery is in the extremity, the hemorrhage

FIG. 51.



may be first controlled by means of pressure. Afterwards, if it continue to bleed, the wounds should be enlarged, and a ligature be applied. Whenever a main artery of a limb

is essentially injured by a musket ball, or otherwise, mortification is very liable to occur; yet no hasty operation

FIG. 52.



should be resorted to, but every possible means to invigorate the limb, such as stimulating liniments, friction, wrapping the part in hot flannel, &c. If, after all these efforts have been made, mortification should occur, amputation is the only remedy. Where punctured wounds injure the deep-seated arteries, the hemorrhage may be controlled by pressure. This is especially the case where the pressure can be made in such a way as to secure the wounded vessel between the compress and the bone. Dr. Stephen Smith has given the following special rules for the treatment of wounded arteries:—

1. When the internal carotid is wounded through the mouth, Mr. Guthrie advises that a ligature be placed above

and below the opening made into it; the rule which generally obtains among surgeons is to apply a ligature to the common carotid.

2. When any one of the branches of the external carotid has been wounded, it ought to be tied at both ends, at the part wounded; if the surgeon cannot do this, and the hemorrhage demand it, the trunk of the external carotid is the vessel on which the ligature should be placed, not that of the common carotid.

3. The internal carotid artery, when wounded near the bifurcation of the common carotid, is to be secured by two ligatures.

4. A ligature may be placed on the internal or external carotid, close to the bifurcation, with safety; but if the wound of either vessel should encroach on the bifurcation, one ligature should be applied on the common trunk, and another above the part wounded; but as neither of these would control the collateral circulation through the *uninjured* vessel, whichever of the two it might be, a third ligature should be placed on it above the bifurcation.

5. The error of placing a ligature on the subclavian artery above the clavicle, for a wound of the axillary below it, should never be committed.

6. Punctured wounds of the arteries of the arm and forearm ought to be treated by pressure applied especially to the part injured, and to the limb generally; but when the bleeding cannot be restrained in this manner, a ligature should be applied above and below the part injured, whether the artery be radial, ulnar, or interosseal.

7. When the ulnar artery is wounded in the hand, which is a comparatively superficial vessel, two ligatures should be placed upon it; when the opening is small, pressure may be tried.

8. When the radial artery is wounded in the hand, in which situation it is deep seated, and the bleeding end or ends of the artery can be seen, a ligature should be placed

on each. If this cannot be done, search should be made by incisions through the fascia, as extensively as the situation through the tendons and nerves in the hand will permit. The bleeding point should be fully exposed, all coagula removed, and a piece of lint, rolled tight and hard, of a size only sufficient to cover the bleeding point, should be laid upon it; a second and larger hard piece should then be placed over it, and so on, until the compresses rise so much above the level of the wound as to allow the pressure to be continued and retained on the proper spot, without including the neighbouring parts; a piece of linen, kept constantly wet and cold, should be applied over the sides of the wound, which should not be closed, so as to allow of any blood being freely evacuated.

9. The anterior tibial artery is to be tied at that part of its course at which it may be wounded. A case has been supposed, in which a knife, a sword, or other narrow instrument, having penetrated the upper part of the leg, has wounded the anterior tibial artery just after it has been given off from the posterior tibial, behind the interosseous space or ligament. The bleeding is free, and from the wound in the front of the leg, although the artery cannot be secured, from the narrowness of the space between the tibia and the fibula, behind which space it is situated. This very peculiar injury, which may, however, occur at any time, cannot be known until an incision has been made on the fore part of the leg, and the bleeding point seen so deep between the bones as not to admit of two ligatures being placed on the artery above and below it. In such a case, an incision is to be made through the calf of the leg, when the artery can be secured without difficulty.

10. The posterior tibial, or the peroneal artery, or both, if wounded at the same time, are to be tied through a free incision in the calf.



11. The popliteal artery is never to be secured by ligature, unless wounded and bleeding.

12. An instrument penetrating the thigh two inches below Poupart's ligament, and wounding the superficial femoral artery, will necessitate the application of two ligatures, one above and the other below the wound in the vessel; but as the profunda under ordinary circumstances is given off posteriorly at this spot, it is possible the upper ligature may be placed on the main artery a little above the bifurcation. The result might, and would probably be, on some sudden movement of the patient, a recurrence of the hemorrhage by regurgitation from the profunda into the main trunk below the ligature; and thus through the wound in the artery, the lower ligature assisting by the obstacle it offers to the passage of blood through it. In such a case the wound should be re-opened, and the profunda sought for and tied.

13. When a wound of the femoral artery or its branches occurs, and the bleeding cannot be *restrained* by a moderate but regulated compression in the trunk of the vessel, and perhaps on the injured part, recourse should be had to an operation, by which both ends of the wounded artery may be secured by ligature; and the *impracticability* of doing this should be ascertained only by the failure in the attempt. If the lower end of the artery cannot be found at the time, the upper only having bled, a gentle compression maintained upon the track of the lower may prevent mischief; but if dark-coloured blood should flow from the wound, which may be expected to come from the lower end of the artery, and compression does not suffice to suppress the hemorrhage, the bleeding end of the vessel must be exposed, and secured near to its extremity.

14. Wounds of the sciatic and internal iliac should be treated by a ligature applied to both cut extremities, and not to the arteries at their origin.

The instruments used to ligate an artery are scalpel, forceps, the common aneurism needle, director, spatula, and ligature.

## WOUNDS OF THE VEINS.

Veins may be wounded similarly to the arteries, but there is much less liability to hemorrhage.

The vena cava and subclavian veins, when lacerated, are usually followed by fatal hemorrhage. The hemorrhage occurring from wounds of the smaller veins is easily controlled by pressure; while that from the larger veins may be arrested by the ligature, in the same manner as that described for ligature of the arteries.

*Varicose Veins.*—Various methods have been suggested for the purpose of treating varicose veins. A plan that I have found successful in some instances is, to compress the vessel by means of a roller or a lace stocking, and bathe the part once or twice a day in a solution of muriated tincture of iron, of the strength of one part of iron to four parts of water. Another method is, to pass a needle under the vein, another through it, and ligate the vein so as to destroy the main trunk. Still another method is to lay the vein open, and apply compresses and bandages. Dr. Velpeau recommends a complete section of the vein with a straight bistoury. Dr. Home treats it by ligating the main trunk. Cauterizing the vein with caustic potassæ, injecting the veins with powerful astringents, by means of the hypodermic syringe, have proved successful in many cases. Per-chloride and the per-sulphate of iron, diluted with water, have been very successfully employed.

## AMPUTATIONS.

Amputations are performed through the shaft of the bones, or through the joints. In the former, it is said to be in the continuity; in the latter, the contiguity. We

copy the following very excellent remarks on the consideration of amputations in general from Dr. Erichson:—

“GENERAL CONSIDERATION OF OPERATIONS.

“Manual skill and dexterity are necessarily of the first advantage to a surgeon, and he should diligently endeavour to acquire the art of using his instruments with neatness, with rapidity, and with certainty; but, desirable as it doubtless may be to be able to remove a limb, or to cut out a stone, in so many seconds; important, in a word, as it is to become a dextrous operator, it is still of far greater importance to become a successful one. The object of every operation is the removal of disease, that either threatens the life, or that interferes with the comfort and utility of existence; and the more certainly a surgeon can accomplish this, the better will he do his duty to his patients, and the more successful will he be in his practice. Success, then, in the result of an operation, whether that result be the preservation of life, or the removal of a source of discomfort, is the thing to aim at. To this, dexterity and rapidity in operating are in the highest degree conducive; but there are various other considerations equally or still more necessary, the solution of which can only be afforded by an intimate general acquaintance with the science of surgery and of medicine. The diagnosis of the nature, and the extent of the connexions of the local disease, have to be made; lurking visceral affections must be detected, and, if possible, removed. The constitution of the patient must be prepared for the operation; the best time for its performance seized; and, after its completion, the general health must be attended to in such a way as shall best carry the patient through the difficulties he has to encounter, and any sequelæ or complications that arise must be met by, and must be subjected to appropriate treatment. These, as well as the simple performance of the operation, are the duties of the

operator; and on the manner in which these are performed, as much, or even perhaps more, than on the mere manual dexterity displayed in the operation itself, will the fate of the patient depend. It is well known that the result of operations differs much in the practice of different surgeons of acknowledged dexterity, and this variation in the proportionate number of recoveries cannot be accounted for by the difference in the degree of manual skill displayed in the operation itself; but must rather be sought in the greater attention that is paid by some surgeons to the constitutional treatment of their patients before and after the operation, and to their more perfect acquaintance with the general science and practice of surgery. Indeed, success in operative surgery depends greatly upon the selection of proper cases. The practice of operating in notoriously hopeless cases, with the view of giving the patient what is called the last chance, is much to be deprecated, and should never be done. It is by operating in such cases, especially in cancerous diseases, that much discredit has resulted to surgery, for in a great number of instances the patient's death is hastened by the procedure; which, instead of giving him a last chance, only causes him to be despatched sooner than would otherwise have happened.

“The condition of a patient that principally determines the result of an operation, is the state of his general health. Indeed, the state of the patient's constitution influences the success of an operation far more than the mechanical dexterity with which the surgeon performs it. It is no uncommon circumstance to see patients sink after the most dextrously performed operations for hernia, stone, the ligature of arteries, &c., owing to some morbid condition of the blood or the system that disposes to diffuse inflammation; whilst, on the other hand, some patients will make the most remarkable and rapid recoveries after they have been mutilated with but little skill. Persons of an irritable and anxious

mind do not bear operations as well as those of a more tranquil mental constitution. Those also of a feeble and irritable habit of body, especially nervous and hysterical women, with but little power of circulation, cannot bear up against severe surgical procedures, being apt to become depressed, exhausted, and to sink without rallying. The condition of the patient's heart should also be carefully looked to before an operation is undertaken. Fatty degeneration of this organ, as indicated by its feeble action, by irregularity and want of power in the circulation, by breathlessness, and by a distinctly-marked arcus senilis, should make the surgeon careful in undertaking any operation attended with much loss of blood, or shock to the nervous system; though it need not be an absolute bar to its performance, if the disease for which it is to be practised would otherwise be speedily fatal. Disease of the lungs, of a phthisical character, when active or advanced, is incompatible with the success of an operation; but under certain circumstances, as will be explained when speaking of diseases of the joints, and fistula in ano, an operation is justifiable and proper, even though the patient be consumptive. Perhaps the most serious constitutional affection, and the one that more than any other militates against the success of an operation, is a diseased state of the kidneys, with albuminuria; in this condition, the inflammatory action that is set up is apt to run into a diffuse and sloughing form, and this is especially the case in all operations about the genito-urinary organs. The contamination of the patient's system by malignant disease must always prevent our operating, as a return to the affection will most certainly speedily take place. And, lastly, no operation, save of the most urgent necessity, and to rescue the patient from immediate death, as for the suppression of arterial hemorrhage, should ever be performed whilst he is labouring under erysipelas, phlebitis, or any diffuse inflammation; and even during the epidemic preva-

lence of these affections, operations that are not of immediate necessity, as for the removal of simple tumours, especially about the head, should be postponed until a more favourable season. Operations in very old people, if of a severe character, and attended by much shock of the system, are commonly fatal; thus amputations in individuals above the age of seventy are very rarely successful.

“The *causes of death* after operation are partly dependent upon the operation itself, but in the great majority of cases they are more connected with the constitutional condition of the patient, and with the influences by which he is surrounded, than with the local injury inflicted during the operation. How often do we see patients carried off by fatal diseases supervening on the most trifling operations, as the removal of a finger or toe, or of small encysted tumours of the scalp, from some condition of the system that is unconnected with the injury that has been inflicted; a condition that only required the local disturbance of the operation to call it into activity.

“The conditions that are most to be dreaded by the surgeon, and that most commonly tend to a fatal result after operation, are shock, hemorrhage, and surgical fever, with its local complications.

“The *shock of an operation* may prove fatal in various ways; from the severity of the mutilation, as in a case of double amputation; from the nervous centres being implicated, as in the removal of large tumours from the face, that have connexions with the base of the skull; or from the state of nervous depression in which the patient has previously fallen, causing him to feel the influence of an operation disproportionately to its severity. These various effects of shock have, however, been much lessened since chloroform has been generally administered in operative surgery.

“*Hemorrhage*, if very copious, may destroy the patient by inducing syncope, that may be immediately fatal; or,



by increasing the influence of the shock, so that he cannot rally; or it may be attended by serious after-consequences, such as the supervention of hemorrhagic or irritative fever. When occurring a few hours, or a day or two after an operation, it usually proceeds from the imperfect ligature of the vessels, or from arteries bleeding after the setting in of re-action, which had not furnished blood whilst the patient was under the influence of the shock of operation. Under these circumstances it is of far less moment, and less frequently fatal, than when occurring at a later period, arising from some morbid condition of the wound or system, and usually associated with a typhoid condition, in consequence of which the proper formation of plastic matter is interfered with. During the performance of the operation, hemorrhage should, as much as possible, be prevented; the operation itself is a cause of depression, and any great loss of blood would only greatly aggravate this.

“*Surgical fever*, of an irritative type, associated with cerebral symptoms, may set in with unusual violence; but it never, I believe, proves fatal without the manifestation of some local inflammatory mischief. These local inflammations are, indeed, the most frequent causes of death after operations; they are all of a confused congestive, or adynamic character, and are frequently connected with a prevailing epidemic constitution at the time. They are of two distinct kinds; the first, taking their origin from a wound as from a central starting-point, are the various forms of erysipelas, diffuse inflammation of the cellular tissue, inflammation of veins, and absorbents, hospital gangrene, and diffuse suppuration of bone. The others are those secondary affections which fall upon some internal organ, as for example, the lungs, liver, brain, or gastro-intestinal mucous membrane. The most frequent and fatal of these various complications, is congestive inflammation of the lungs; which is an almost invariable accompaniment, if not a cause of death in surgi-



cal fevers. The membranes of the brain, in other instances, are found inflamed; and more rarely the gastro-intestinal mucous surface is affected. Internal organs may also have been so injured by the accident or disease that necessitates the operation, as to be unable to recover themselves, and falling into a state of inflammation or gangrene, may destroy life. This we see happen in the intestines in cases of hernia, and in the brain in injuries of that organ."

For the instruments used in amputation, see figs. 47—51.

#### OPERATION.

Amputation may be performed in two ways, with nearly the same facility. One method is called the circular, the other the flap.

The circular operation consists in first fixing the tourniquet on the main artery, a considerable distance from the place of operation, sufficiently tight to entirely interrupt the circulation. After which, if the arm is the limb to be operated upon, as represented in fig. 53, the patient should either be placed on a table, or seated on a chair, one assistant supporting the arm, while another grasps it with both hands, and forces the integument back as far as possible. The surgeon at the same time passes his hand and knife under the arm, as represented in the figure, bringing his knife completely over the arm, and by commencing to cut with the hilt, it should be firmly brought around to the point from which it started, separating the integument and superficial fascia, after which a small scalpel should be used to loosen the skin and fascia upon the arm for two or three inches, and by means of a split bandage the integument should be retracted as far as possible. This is done for the purpose of leaving a good stump. A second incision should now be made as far up as the skin is retracted, separating all the soft tissues to the bone. The muscles are now separated from the bone by a scalpel, and held back by a strip

of strong muslin, (called a retractor,) slit so as to pass on each side of the arm. The covering of the bone or periosteum

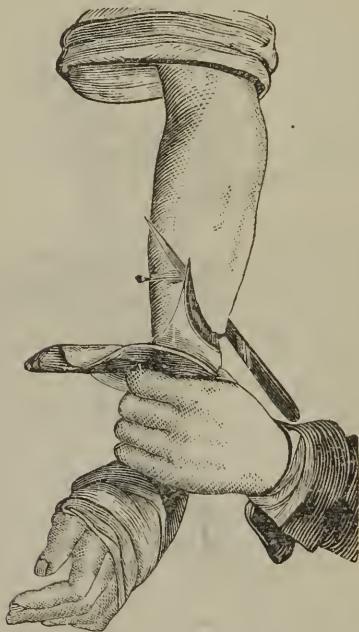
FIG. 53.



teum is next divided by a circular sweep around it with a small knife. The next step is to saw off the bone, which should be done with much care, so as not to fracture or shiver any portion of it. When this is done, all the sharp edges should be trimmed off with a pair of bone forceps. The brachial artery should then be tied, and the tourniquet removed. All the small arteries which are now observed to bleed, should be well secured with the ligature. When the arteries are all tied, and the veins have stopped bleeding, the stump should be thoroughly cleansed with cold water, and the flap brought together in an exact horizontal line across

the middle of the stump, and fastened by means of adhesive strips, four or five inches in length, and one-half inch wide.

FIG. 54.



The stump should then be covered with lint, and secured by a bandage tightly applied, and kept wet with cold water. When the ligatures are applied to the artery, they should be tied in what is called a surgeon's knot, with ends of sufficient length to hang beyond the edge of the wound. The dressing should be carefully removed every two or three days, but no attempt should be made to remove the ligatures under eight or ten days; and it should not be done then, unless it can be effected by gentle pulling.

In the flap operation, as shown in fig. 54,

The knife is thrust into the limb at the point where amputation is to be made, until it reaches the bone, and then by a gentle rotary motion it is passed back of the bone, so as to make the posterior flap first. The incision is now made downward and outward, so that the knife will emerge from one-and-a-half to four or five inches from the point of insertion. The knife is again introduced at the point where it first entered, making an incision forwards and upwards, so as to form a flap corresponding with the first. The flaps should now be brought back, the periosteum separated, the bone divided, and the operation completed as directed in the circular operation.

*Amputation of the leg\** may be performed in two situations, according to the seat of the disease, and the position of the patient in life. In those individuals who can afford a well-constructed artificial limb, and in whom the disease will admit of it, the amputation may be performed in the lower part of the leg. In those, on the other hand, who will be obliged to wear a common wooden pin, a long leg stump would be highly inconvenient and much in the way; and here the operation usually leaves the best result, if performed just below the tuberosity of the tibia. If, however, the disease be confined to the ankle, amputation, even among the poorer classes, may be advantageously done below the calf; the patient afterwards wearing a short wooden pin, in the socket of which the stump is fixed in the extended position, as recommended by Fergusson.

The flap operation of the leg may be performed in the following way. The tourniquet having been applied to the artery in the popliteal space, the assistant, whose duty it is to retract the flap, takes his stand in this, as in all amputations of the lower extremities, opposite to the surgeon. In the left limb the knife is entered at the posterior edge of the tibia, carried forwards for a distance of one-and-a-half inches,

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\* Erichsen.

then across the anterior part of the leg to the posterior border of the fibula, up which the incision is made to extend to a corresponding distance; on the right leg the incision commences on the fibular side of the limb, and terminates on the tibial.

The flap thus formed, which should be broad and well rounded, is next dissected up by a few touches of the point of the knife, and transfixion of the limb made by passing the blade across behind the bones from one angle of the incision to the other. The posterior flap is then formed by cutting obliquely, downwards and backwards, and should be about three inches long. The bones are next cleared by a double sweep of the knife, and the interosseous soft parts divided by carrying the instrument in a figure of eight way, between the bones. In doing this, especial care must be taken not to direct the edge upwards, so as to split either of the tibial arteries, more particularly the anterior: for as these vessels retract above the membrane, its ligature, when divided too high, is no easy matter. In sawing the bones, the fibula should always be cut first, as otherwise it will be pretty sure to be splintered. This bone may be best divided on the left side by sinking the hand below the level of the limb, and using the heel of the saw: and on the right, by holding the hand above the limb, and cutting with the end of the instrument. If the limb be very muscular, a large pad of the muscles of the calf will be left in the flap; this will usually be a good deal in the way during treatment, may slough, and thus interfere with proper union. In order to avoid this, the best operation consists in such cases as these, in forming skin flaps on the anterior and posterior aspects of the limb, and then making a circular cut through the muscles. In this way the ends of the bone receive but a thin covering; but this matters little if the operation is performed just below the knee, for the patient bearing upon the anterior face of the stump exercises no pressure upon its cicatrix when an artificial limb is adapted to it.

Amputations of the thigh are commonly required both for accident and disease; they may be performed in three situations: immediately above the knee, in the middle of the limb, or in its upper third. In the amputation in the lower and middle third, a tourniquet may be applied high in the limb; but when the operation is performed in the upper third there is no space for the application of this instrument, and the surgeon must then trust to an assistant compressing the artery as it passes over the brim of the pelvis. This is best done by grasping the great trochanter with the fingers of the right hand, and then applying the thumb firmly over the artery. Upon this, the other thumb is then pressed as firmly as possible, and thus all chance of letting the vessel slip is prevented.

Amputation above the knee, or Vermale's operation, is best done by lateral flaps. In performing this operation, the outer flap should always be made first. The point of the knife being entered in the middle of the thigh, about three inches above the border of the patella, is close round the bone, and brought out round the centre of the ham; the flap is then cut downwards and outwards; the knife being entered again in the upper angle of the incision, is carried close round the bone to its inner side, and the inner flap made by a sweeping cut. Unless the blade be kept in contact with the bone in this situation, the femoral artery is very apt to be split; the flaps being then retracted, the bone is then cleared by two sweeps of the knife, and sawn about four inches above its articular surface. In the middle and upper third of the thigh, the antero-posterior flap operation is to be preferred. In ordinary cases the anterior flap may first be made, and the posterior one subsequently fashioned by transfixion.

If, however, the patient be very much emaciated, it is difficult to get a good cushion from the anterior part of the thigh in this way, and it is consequently preferable to follow the plan recommended by Mr. Luke, "of making the pos-

terior flap first by transfixion, and the anterior one afterwards by cutting from without inwards. If the patient be excessively muscular, and the operation be a primary one, I think it is better to make a skin flap by a circular incision through the subjacent soft parts. In this way the large, gaping, fleshy stumps are avoided, which commonly run into unhealthy suppuration and sloughing, and lead to the death of the patient.

*Amputations in the Contiguity.*—The method of amputation already described may be employed in the disarticulation of limbs. The instruments required are a single knife, having a narrow blade, to enable it to move more readily over the irregularities of the joint, with a thick back to give it firmness, and an artery forceps. The chief points to be considered by the operator are thus concisely stated by Malgaigne, (*Operative Surgery, American Edition*):—

“The operator has three special objects in view:—1. To well recognise the articulation before commencing. 2. The flesh being divided, to traverse the articulation without hesitation, destroying all its means of attachment. 3. To preserve flesh and integument enough. Whence the following rules:—

“*To Recognise the Articulation.*—The surgeon should have the disposition of the articulation so fixed in his mind, that he could, without having it under his eyes, trace it out exactly. In this way, recognising one part of the articulation, he is sure of the others, neither the blood nor the soft parts causing the knife to deviate. He must also know the direction of the ligaments, to attach them more surely; their length, to cut them between their attachments; their breadth, to divide them completely.

“1. The surest guide in finding the joints, are the osseous projections. It is with them you must first occupy yourself. To find them, you place the limb in a position that causes them to project; seek them on the side where they are most prominent; put aside by careful pressure the



soft parts, fat, or œdema that mark their projections; and, lastly, seek them by starting from a known point; for example, passing the finger along the shank of a long bone till you reach its extremity.

“2. The second indication consists in the folds of the skin, sometimes placed immediately above the joint, sometimes some way from it.

“3. You may, as a third recourse, cause to be prominent to the sight and touch the tendons which are inserted near the joint. To effect this, cause the muscles to contract; this is usually sufficient; or you may render their projection greater by opposing the movement of the limb, which their contraction tends to execute.

“4. If all these trials fail, you may assist yourself by the neighbouring tuberosities, whether or not they be in the same line, provided their distance and connexions are well determined beforehand. It is objected that the relations, and especially the distance, vary in different subjects; consequently, they can only give us a tolerably close indication; but certainly there is never more than some lines difference, and it is better to have such approximation than none at all.

“5. If these means do not suffice, seize the limb with the right hand, and seek the joint with the left, moving the limb slightly, and thus try to mark out the two diameters of the joint, or, in other terms, the point of entrance and exit of the knife.

“6. Lastly, supposing that all these indications do not afford a certain result, incise the skin in the most suitable direction, and, after having raised it, assure yourself by the touch of the articular line. If the touch does not point it out, place the knife in the angle of the wound nearest yourself, its heel perpendicular to the horizon, and the edge perpendicular to the bone, and thus move it along the bone with a sawing, sidelong movement, without taking it off, and the pressure will cause the knife to enter the joint when it reaches it.

*"To Traverse the Articulation.*—1. The articulation recognised, or at all events presumed to be so, as we have directed, the index finger and thumb should rest applied on the two extremities of the articular diameter until the knife replaces them. If this search has been made with the right hand, substitute the left hand for it, before seizing the knife. In this way you mark the point of entrance and exit of the knife.

"2. If you attack the joint by its dorsal surface, semi-flex the limb, to extend the parts and enlarge the articular line. Without this precaution you often fall on the neighbouring joint, as happens on the foot and hand.

"3. The knife should not generally be carried into the joint, without having first cut its principal means of connexion, which should be divided from without inwards.

"4. In joints with several projections and interlockings, commence by the internal or external side. As the knife opens one part, do not push it in there, but go on dividing and opening farther. In this way the ligaments are not put out of the reach of the knife, or shielded by bony projections.

"5. An important fact. An articulation, that offers to the anatomist a surface equal to one inch, presents to the operator at least four. So long as the ligaments are divided between their attachments, it is of slight importance whether during their division the knife fall on the articular line, or at the side of it.

"6. The dorsal and lateral ligaments being cut, we can generally engage all the blade of the knife between the articular surfaces; but if there are interosseous ligaments, they must be first divided. Carry the point of the knife directly on them; as they are divided, the joint opens.

"7. To destroy these ligaments, you must know the interstices between the bones through which they may best be attacked. In general, on the hand and foot, the bones, very compact on their dorsal surface, leave between them

on their palmar and plantar surfaces intervals which lodge these ligaments. Carry the knife under these intervals, inclining the handle towards yourself, and making it form an angle of forty-five degrees anteriorly; then raise it up to a right angle. The ligaments divided by this movement allow the articulation to be opened sufficiently for the knife to enter it.

“8. It is useless to luxate; it strains the parts very painfully; and if you separate the parts very much on one side, you apply those of the other together. If, in cases of difficulty, you have recourse to this means, luxate downwards as far as half the dorso-palmar diameter, and then *vice versa*. But it is better to separate the parts by slight traction parallel to the axis of the stump; this ordinarily suffices. The heel and point of the knife should always move in the same line. If, in bringing the knife out of the joint, you dread jaggling the integuments, push them gently aside with your left forefinger and thumb.

“*To Preserve Sufficient Flap.*—1. The proceedings vary according to the method, and often even in each method.

“2. In the circular, you can generally count only on the skin to cover the surface of the wound. Make the incision at a sufficient distance from the joint, and dissect back the skin as a cuff. If there are muscles under it, you may cut them obliquely on the plan of Alanson, or divide them perpendicularly on a level with the joint.

“3. The oval method is ordinarily performed by tracing on the dorsal surface a V incision reversed, the ends of which are joined by a semicircular incision round the palmar surface. When there are any large vessels, leave them in the portion to be divided last, as in the method of flaps, so as to be able to compress the artery before dividing it beyond the part compressed.

“4. In most of the oval proceedings, the second incision is made to join the first at its point of commencement. A loss of substance is the consequence; or, if the V termi-

nates on a level with the articulation, there is a considerable difficulty in getting the knife to act in disarticulating. I lay down here as a general rule, *Expose the joint to be destroyed by a longitudinal incision passing half an inch, at least, above, and one inch below it.* The two branches of the V, which fall on the inferior part of the incision, leave, as it were, two small flaps at the upper part, which do not hinder immediate and linear union, and which perfectly cover the osseous prominences left by the disarticulation.

"5. The methods by one or two flaps are executed in two ways. Sometimes the flaps are made first, before touching the joint; but most usually a simple incision is made first, or the least important flap, and the second is not begun till after the disarticulation.

"6. The knife having traversed all the joint, when the bones are large and uneven, as in the foot and hand, the instrument must be withdrawn, and its point placed horizontally in the extremity of the joint next the hand operating, and its way cut by pressing from right to left.

"7. To avoid terminating the flap by a point, the knife must be held horizontally close to the bones, and kept so to the required extent, cutting freely.

"8. It is well, before you terminate your flap, to apply it to the part to be covered, to see if it is long enough.

"9. If there remain any tendons beyond the bleeding edge, cut them off with a scissors.

"10. If you fear too much retraction of the skin, do not divide it until the muscles have retracted.

"11. You may cut your flap from engorged tissues, so long as the engorgement is not malignant.

"12. You may operate when there is not enough skin to make a flap; a cicatrix will be formed on the articular surfaces."

*Instruments.*—The instruments used are the cutting knife, metacarpal saw, scalpel, tenaculum saw, bone forceps, artery forceps, needles, and tourniquet.

## AMPUTATION OF THE UPPER EXTREMITIES.

Amputation of the fingers may be performed at the first phalanges, where they articulate with the metacarpal bones, or at any of the joints of the fingers. Amputation of the fingers may also be done through the phalangeal bones. It may be performed by the circular or flap method. In either case, it should be done as directed for other long bones. The following is Lisfranc's method for disarticulations of the phalanges:—

“*The Joint is opened on its Dorsal Surface.*—If you would remove the last phalanx, pronate the hand; an assistant holds away the sound fingers, and at the same time turns back the skin of the diseased finger, and retains it in position. The operator seizes the phalanx with the thumb and index finger of the left hand placed across it, on its palmar and dorsal surfaces, and bends it to an angle of forty-five degrees. There are three ways of recognising the line of the joint:—1. There is on its dorsal surface a well-marked fold in the skin; the joint is half a line below it. 2. If you cannot find this, assure yourself of the dorsal projection formed by flexion, and cut half a line beyond it. 3. Seek the termination of the fold; you will find the joint half a line below it. Then take a straight bistoury in the third position, and, applying its heel perpendicularly on the recognised part of the articular interline, cut from left to right a very small semicircular flap, which terminates at the other extremity. You should divide the capsular ligament in this cut; if you have not, seek it by the indications given. Then, without entering the joint, cut the lateral ligaments. For the ligament situated on the left of the surgeon, carry the bistoury on this side perpendicularly to the axis of the last phalanx; the handle nearer the operator than the point, and the edge also slightly turned towards the operator. In this way, the incision is perfectly suited to the articular surface, and the ligament is divided

at the first cut. Bring back the bistoury to the other side, and attack the second lateral ligament in the same manner; only here the handle of the bistoury is turned downwards, and farther from the operator than the blade. When the surgeon is well practised, these three steps are comprised in one; and in the same cut, the skin, the left lateral ligament, the dorsal ligament, and the right lateral ligament are divided. In whatever way you attain this point, after having widely opened the joint, seize the phalanx by its sides, and by degrees extend it; while the bistoury, entering the articulation, divides the palmar ligament, passes round the head of the phalanx, slips parallelly under it, and at the same time cuts a semicircular flap large enough to cover all the solution of continuity. If you would remove the last two phalanges, the proceeding is the same, only the dorsal incision should start on each side on a level with the termination of the palmar fold in the skin. In performing this proceeding, inexperienced operators are frequently misled. It has also another inconvenience in unpractised hands, viz.: the base of the flap is cut and jagged in dividing the lateral ligaments, but a little practice gives all the necessary precision in this respect."

#### AMPUTATION OF THE METACARPAL BONES.

When a metacarpal bone is to be removed, an incision should be made on the dorsal portion of the hand to correspond with the portion of the bone to be removed. The soft parts should be continuously separated from the bone. The knife should now be passed under, and by a forward cut made to separate all portions of the soft parts from the bone. If the operation is on either the third or fourth metacarpal bone, the section should be made with bone forceps; if the metacarpal of the thumb is the one to be removed, it should be sawn perpendicularly to its axis; if the index finger section should be made, obliquely from



without inwards; if the little finger, from within outwards, the soft parts being retracted as in other operations.

*Disarticulation of the First Metacarpal Bones.*—To disarticulate the first metacarpal bones, the finger or thumb should be abducted by an assistant, and an incision made in the middle of the commissure between the fingers, the joint opened, and an external flap formed by carrying the knife close along the side of the bone beyond the metacarpal phalangeal joint.

*Disarticulation of Radio-Carpal Articulation.*—The wrist joint is composed of the radius and ulna, above, and scaphoid, semi-lunar, and cuneiform bones, below.

Malgaigne (op. cit.) gives the following rules for determining the line of articulation:—"1. Strongly bend the hand backwards; the summit of the angle formed by it with the forearm indicates the radio-carpal articulation. 2. Feel in front the transverse projection of the radius; the joint is one line below it, and about half an inch above the crease in the skin that separates the palm of the hand from the forearm. 3. Determine the summit of the styloid processes, and draw a transverse line between them; the joint will be two lines and a half above this imaginary line. 4. Lastly, the styloid process of the radius being found, the styloid process of the ulna is two lines shorter, and the joint is a quarter of an inch above it.

*Circular Method.*—The tourniquet being applied over the brachial artery, or compression being made, an assistant holds the forearm in a position between pronation and supination, and strongly retracts the skin at the wrist; a second holds the hand; the operator, standing upon the right side of the limb, makes a circular incision through the skin, about an inch below the styloid processes, grazing the thenar and hypo-thenar eminences; the skin is dissected and turned back as high as the joint, a second circular incision just above the pisiform and unciform bones, and over the joint, divides all the soft tissues; the joint is



then entered on one side under the styloid process, and the knife, held perpendicularly, is carried along the curve of the carpal bones to the opposite side, completing the disarticulation at a single sweep; the radial and ulnar arteries are to be tied, the interosseous rarely; the styloid processes may or may not be removed, and the wound is closed by bringing together the parts antero-posteriorly.

*Modifications.*—Velpéau directs the hand to be flexed when the incision is made on the back of the wrist, and to be extended when it is made in front; it has been advised also to direct the assistants to rotate the limb while the incision is made, rendering the movements of the knife more limited.

*Flap Method.*—Amputation at the wrist may be performed with single or double flaps, according to existing lesions. If a single flap is made, it may be taken from the dorsal or palmar aspect. If from the dorsum, the hand is held in a prone position, the integument strongly retracted by an assistant, the operator grasps the extremity in the palm of the left hand, placing the thumb and forefinger on the extremities of the styloid processes; a semi-circular incision is then made on the dorsum, from just below the processes, having its concavity upwards, the skin is dissected and turned back, and the joint, the tendons, and radio-carpal ligaments divided, the lateral ligaments are next cut, the articulation opened, and the knife passed through, forming a palmar flap of two-thirds of an inch in length; the styloid processes may remain if desired. The double flap is generally made as follows:—A semi-circular flap is made from the extremity of one styloid process to another, but not so low: first on the palmar and then on the dorsum of the wrist; the ligaments being divided, the hand is forcibly flexed, and the knife carried through the joint from the dorsum or from the side, as in circular amputation.

*“Disarticulation of the Elbow Joint.\*—*The elbow is a true ginglymoid or hinge joint, formed by the lower extremity of the os brachii above, and the upper extremities of the radius and ulna, the former on the outside, and the latter on the inside; the ulna forms the principal part of the lower portion of the joint, having a large articular surface of the projection of the olecranon backwards, and the coronoid process forwards, which embrace the irregular articulating surface of the os brachii; the radius is merely in contact with the os brachii; the articulation has anterior, posterior, and lateral ligaments. The exact position of the joint is determined only by careful attention to the anatomical relations of the following osseous prominences about the joint:—the epicondyles, or the most prominent points on the condyles of the os brachii are recognised, the internal more readily than the external, a line drawn through the lower points, is, on the outside, a quarter of an inch above the interarticular line, and on the inside three-quarters of an inch; the articulation of the radius and humerus is transverse, that of the ulna irregular, and owing to its projections must be entered externally.

“Malgaigne remarks of the position and direction of the interarticular line:—‘Two facts result: first, that the articular interline is very oblique from without inwards, and from above downwards; second, that it is very much below the tuberosities of the humerus. If, then, in cutting your anterior flap, you extend its base up to the level of these tuberosities, it will almost always be too short to cover the bone, which will project, especially on the inside and downwards. This often happened to Dupuytren, who put in his knife transversely at the internal and anterior part of the epitrochlea, to bring it out on the anterior border of the epicondyle. You should, on the contrary, plunge in the knife obliquely one inch below the middle projection

\* Stephen Smith.

of the epitrochlea, to bring it out half an inch below the projection of the epicondyle.'

"*Circular Method.*—The brachial artery being controlled, the arm is held in a supine position, and the operator, standing on the outside of the limb, makes a circular incision, through the skin only, around the arm, four fingers' breadth below the joint; the integuments are dissected up to the joint and reflected backwards; the muscles in front are then divided, the ligaments cut, and the joint entered, and disarticulation completed by dividing the triceps, or sawing off the olecranon; the brachial artery is divided before its bifurcation.

"*Single Flap.*—The limb is placed in a supine position, but slightly flexed; the operator, raising the soft parts from the bone in front of the joint, enters a straight knife about a finger's breadth below the internal condyle; traversing the limb close to the ulna, it appears two fingers' breadth below the external condyle, to allow for the retraction of muscles arising from the humerus, and cuts an anterior flap about three inches in length; this flap being retracted, the knife is passed behind the limb, and the heel entered on the outside, between the articulation of the radius and os brachii, and continued across the back part of the joint, dividing all the tissues to the internal angle of the wound; the anterior ligament and lateral ligaments are divided, the bones luxated forwards, the insertion of the triceps cut, and the operation completed.

"Guérin recommends an external flap. This is made by transfixing the limb upon the outside, entering the point of the knife just within the head of the radius, traversing its neck, and cutting out a large external flap; a second flap is made from the inside of the arm by cutting from without inwards, and from below upwards; the soft tissues immediately covering the joint are divided, and disarticulation completed. A good covering is thus made for the condyles.

*Oval Method.*—Baudens performed the oval operation, commencing the incision over the border of the radius, five fingers'-breadth below the fold of the joint, and passing around the limb, a finger's-breadth higher, over the ulna ; the dissection was then carried upwards to the joint, and disarticulation accomplished."

#### AMPUTATION OF THE ARM.

*Circular Method.*—The arm should be carried at right-angles off the body, the surgeon standing on the right side of the limb; then make a circular incision through the integuments, and loosen them from the fascia with the knife; then let them either be drawn up or rolled up by an assistant, from one inch to one inch and a half. Then let a second incision be made at the margin of the retracted skin, dividing the superficial muscles and laying the bone bare. The bone should be sawed through, the brachial artery secured, and the wound brought together, from before backwards, or it may be closed in the most convenient way.

#### AMPUTATION AT THE WRIST. (SEE FIG. 55.)

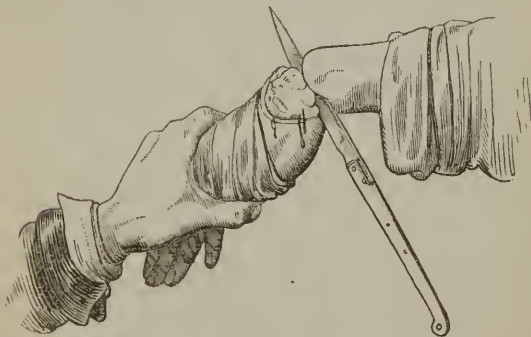


Fig. 55.

*Amputation at the wrist* may be performed in the following way :—Let the skin be pulled back, and a circular in-

cision then made a little below the line that separates the fore-arm from the hand. Then cut through the external lateral ligament, and carry the knife across, so as to divide the remaining attachments; or a flap may be made by making a semi-lunar incision across the back of the wrist. The flap being dissected, the joint is opened behind the lateral ligaments; the ligaments are cut. The knife is then placed between the carpus and bones of the fore-arm, and a flap formed from the anterior surface of the palm.

#### AMPUTATION OF THE HIP-JOINT.

This operation is requisite in cases in which the upper extremity of the thigh-bone is smashed, and in which the soft parts are so injured that it is of no use to attempt excision. "No man," says Mr. Guthrie, "should suffer amputation at the hip-joint when the thigh-bone is entire. It should never be done in cases of injury when the bone can be sawn through immediately behind the trochanter major, and sufficient flaps can be preserved to close the wound thus made. An injury warranting this operation should extend to the neck or head of the bone, and it may be possible, as I have proposed, even then to avoid it by removing the broken part." \* This amputation is generally accomplished in the flap method, the flaps being either anterior and posterior, or lateral. The femoral artery should be first tied or compressed immediately below Poupart's ligament during the operation, and, if tied, its cut orifice be tied immediately afterwards. The patient in the recumbent posture, at the end of the table, and the limb held out horizontally, a long knife should be thrust through the limb, immediately on the inner side of the joint, and carried forwards and inwards, and made to cut the inner flap from the adductor muscles. This flap should be immediately grasped by an assistant, who should compress the fe-

\* Guthrie, Commentaries, Sixth Edition, Page 63.

moral artery. In the next place, cut into the hip-joint with a short, strong, curved knife, and sever the ligamentum teres and the muscles attached to the digital fossa. Lastly, putting in the long knife over the trochanter, cut downwards and outwards to make the outer flap.

Of the method by anterior and posterior flaps, a very good example is afforded by a case of Mr. Tatum's, at St. George's Hospital, London, in July, 1855. The thigh having been slightly bent and abducted, the knife was entered at the outside, at the junction of the upper and middle thirds of a line drawn from the anterior superior spine of the ilium to the great trochanter. It was carried obliquely inwards and downwards immediately in front of the joint, and brought out about two inches below the tuberosity of the ischium. "Cutting my way out," says Mr. Tatum, "I made a large anterior flap, which was at once firmly grasped, so as to prevent the possibility of hemorrhage, and drawn upwards. The anterior part of the capsular ligament being laid bare, was easily divided; the head of the bone was then partially dislocated by rotating the limb outwards and extending it backwards; the ligamentum teres was at once cut through, and the dislocation of the thigh-bone completed. The knife was then carried through the joint and over the trochanter, and the posterior flap was made. In doing this, I took care to have this flap somewhat small and thin, well knowing, by experience, that a large posterior flap tends, by its weight, to drag the cut surface apart in the progress of healing. As I completed the posterior flap, dry sponges were stuffed into the wound by assistants, and thus all hemorrhage was at once stopped." Plenty of ligatures securing every bleeding vessel, including the femoral vein, sutures and plasters completed the operation. The patient, a lad of sixteen, left the Hospital in a month.

In this case, as in one operated on lately by Mr. C. G.



Guthrie, the entire thigh-bone was removed, in order to give the patient a greater chance of security from the return of cancer than would have been given by amputation through the affected bone. In any such case, the surgeon, probably, will be able to plan his lines of incision as he pleases; and the limb can be moved in any direction to facilitate his proceedings. Not so in cases in which there is extensive destruction of soft parts and smashing of the neck of the bone. Here the surgeon must be guided by the direction in which he can secure the best covering of skin.\*

#### AMPUTATION AT THE KNEE-JOINT.

This operation may be substituted for amputation in the lower third of the thigh in cases in which excision of the knee-joint is impracticable.

1. *Syme's Operation*.—A semi-circular incision is made through skin and fascia over the patella; next, the knife is thrust horizontally across, immediately behind the joint, and is made to cut a long flap from the calf of the leg; next, the anterior flap being filled up, the extended muscles are severed from the upper border of the patella; the remaining soft parts are divided, and the former sawn through the condyles, immediately above the joint. 2. If circumstances permit it, an anterior flap may be made, including the patella, by a semi-circular incision through the tissues in front of the joint, beneath the patella, from the posterior part of one condyle of the femur to the other. Then the ligamentum patella is cut through, the patella lifted with the anterior flap, the joint opened by cutting through the lateral and crucial ligaments, and, lastly, a sufficiency of under-flap cut from the calf. The interarticular cartilages should always be removed, and the surface of the patella, or femur, if diseased. The popliteal artery should not be

\* For details of other modes of performing this operation, see Guthrie's Commentaries, and South's Chelius, Vol. II.



wounded above the part at which it is severed. The patella should be brought down over the end of the femur.

#### AMPUTATION OF THE LEG.

1. *Oval Amputation through the Calf.*—An oval incision is made in the direction shown in the cut (fig. 56) through

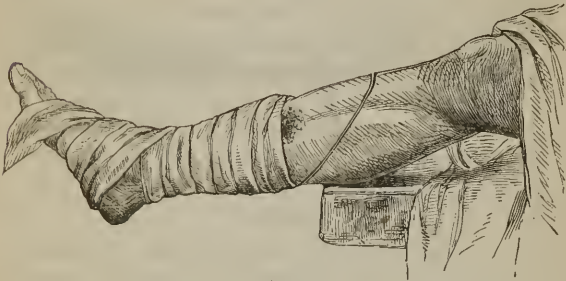


Fig. 56.

skin and fat; these are thoroughly drawn back. The incision is carried upwards, obliquely, through the gastrocnemius, to the bones, so as to make a posterior flap. (Fig. 56.) This being well pulled up, the remaining soft parts around and between the bones are divided; lastly, the bones are sawn through. The integuments are brought together in a transverse line. 2. *The flap operation* (fig. 57) is performed by Mr. Fergusson in an elegant and expeditious manner, thus:—He first places the heel of the knife on the side of the limb farthest from him, and draws it across the front of the limb, cutting a semi-lunar flap of skin. When its point has arrived at the opposite side, it is at once made to transfix the limb. This stage of the operation is represented in the figure below; and then the posterior flap is cut. The surgeon must take care not to get his knife between the two bones. When the operation is performed high up, the popliteal artery will be divided instead of the two tibials. The tibia, however, should never be sawn higher than its tuberosity, or the joint will be

laid open. If low down, the *tendo achillis* will require to be shortened after the flap is made. The flap is to be brought forward and confined by a stick or two, the line of junction being horizontal. (Fig. 57.)

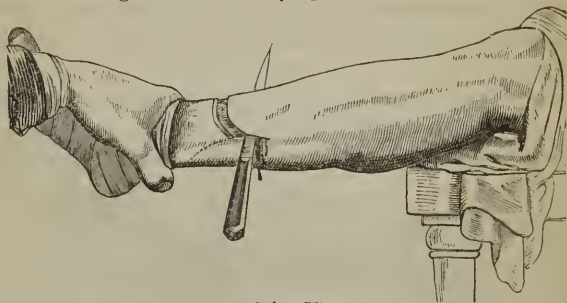


Fig. 57.

*Circular Method.*—The artery being under command, as in amputations of the thigh, and the leg being placed horizontally, one assistant supporting it at the ankle, and another holding it at the knee, and drawing up the skin, the surgeon makes a circular incision through the skin four inches below the tuberosity of the tibia. The integuments are next to be dissected up for two inches and turned back, and the muscles are to be divided down to the bone by a second circular incision. Then a long, slender, double-edged knife, called a catline, is passed between the bones to divide the interosseous ligament and muscles, and both bones are sawn through together, the flesh being protected by a retractor, which should have three tails. The spine of the tibia, if it projects much, may be removed with a fine saw or bone-nippers, and care should be taken not to leave the fibula longer than the tibia, or it will give much trouble. The anterior and posterior tibial, and peronæal arteries, and any others requiring it, being tied, the stump is to be treated as directed after amputation of the thigh. The integuments should be put together transversely.

## AMPUTATION OF THE FOOT.

1. Amputation of the toes, at any of their joints, is performed in precisely the same manner as amputation of the fingers. In removing a single toe from its metatarsal bone, the surgeon should take care, first of all, to ascertain the exact situation of the joint, which lies rather deeply. Moreover, he should not remove the head of the metatarsal bone, as he may the metacarpal, because it is important to preserve the entire breadth of the foot.

2. Amputation of all the toes at their metatarsal joints—an operation which may be requisite in cases of frost-bite—is performed by first making a transverse incision along the dorsal aspect of the metatarsal bones, dividing the tendons and lateral ligaments of each joint in succession; and then the phalanges being dislocated upwards, the knife is placed beneath the metatarsal extremities, and made to cut out a flap from the skin on the plantar surface sufficient to cover the heads of the metatarsal bones.

3. Amputation of the metatarsal bone of the great toe is performed precisely like the operation for the removal of the metacarpal bone of the little finger. An incision down to the bone, with a scalpel, is carried along its dorsum and round the foot of the great toe. Secondly, the knife, which must be kept as close to the bone as possible, is made to dissect it out from the surrounding parts. Thirdly, the bone is cut through with forceps. Vessels are to be tied, and the wound brought together. It may be observed that, in dividing the metatarsal bones of the great little toes, or the metacarpal bones of the fore or little finger, care should be taken not to leave any prominent angle.

4. Amputation of all the metatarsal bones (*Hey's operation*) is performed in the following manner:—The exact situation of the articulation of the great toe to the inner cuneiform bone, (to which the tendon of the tibialis anticus

may serve as a guide,) being ascertained, a semi-lunar incision, with the convexity forwards, is made down to the bone, across the instep, from a point just in front of the aforesaid articulation, to the outside of the tuberosity of the fifth metatarsal bone. The flap of skin thus formed being turned back, the bistoury is to be passed round behind the projection of the fifth metatarsal bone, so as to divide the external ligaments which connect it with the cuboid. The dorsal ligaments are next to be cut through, and then the remaining ones; the bone being depressed. The fourth and third metatarsal bones are to be disarticulated in a similar manner, dividing their ligaments with the point of the knife, and taking care not to let the instrument become locked between the bones. The first metatarsal is next to be attacked, and, lastly, the second, the extremity of which being locked in between the three cuneiform, will be more difficult to dislodge. Perhaps it may be convenient to saw it across. When all the five bones are detached, the surgeon completes the division of their plantar ligaments, and slightly separates the textures which adhere to their under surface with the point of the knife, and then, the foot being placed horizontally, he puts the blade under the five bones, and carries it forward along the inferior surface, so as to form a flap from the sole of the foot sufficient to cover the denuded tarsal bones.

5. Amputation through the tarsus, so as to remove the navicular and cuboid bones, with all the parts in front of them, is commonly called *Chopart's operation*. In the first place, the articulation of the cuboid with the os calcis, (which lies about midway between the external malleolus and the tuberosity of the fifth metatarsal bone,) and that of the navicular with the astragalus, (which will be found just behind the prominence of the navicular bone in front of the inner ankle,) must be sought for; and a semilunar incision be made from one to the other, as in the last described operation. The flap of skin being turned back, the

internal and dorsal ligaments that connect the navicular to the astragalus, are to be divided with the point of the bistoury, recollecting the convex shape of the head of the latter bone. The ligaments connecting the os calcis and cuboid are next divided, and lastly, a flap is to be procured from the sole of the foot. It may be expedient after this operation, to divide the tendon Aehillis, if the heel is drawn backwards.

#### AMPUTATION AT THE ANKLE-JOINT.

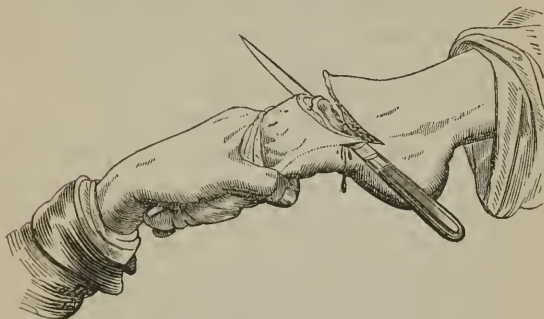


Fig. 58.





*Syme's Amputation.*—The essence of this operation consists in the removal of the entire foot, and in preserving the integument of the heel as the most natural pad for the stump to rest upon. The incisions employed are different in the hands of various surgeons. The knife is carried round down to the bone. The ankle-joint is laid open in front, and its lateral ligaments divided. The os calcis is then dissected out, in which process, which is not easy, the knife should be kept close to the bone, so as not to wound the plantar arteries, if possible. The malleoli are cut off smoothly, and if there is any disease of the ankle-joint, a thin layer at the end of the tibia should be removed; the posterior flap is then brought forward and retained by suture. The skin of the heel is liable to slough,

and hence many surgeons make the incision more oblique, so as to preserve more skin from the dorsum of the foot, and less from the sole.

2. *Pirigoff's Amputation*.—M. Pirigoff, a distinguished Russian Surgeon, proposes to leave the posterior part of the os calcis, so as to fill up the heel-flap, to make the stump larger and better adapted to bear pressure, and to run less risk of wounding the internal tibial artery than is the case in Mr. Syme's operation. The steps of the operation are the same as in Mr. Syme's, except, that so soon as the astragalus is disarticulated, the os calcis is sawn through immediately behind it. When the operation is completed, the cut surface of the os calcis is brought into apposition with that of the tibia."

*Resections*.—Shassaignac lays down the following very rational propositions as the basis of his Nouveau Systeme de Resection:—1. Make but a single integumentary incision in all resections, whatever they may be. 2. In all cases make a section of bone before disarticulation. 3. Isolate and separately remove each articular extremity, always commencing with that which is the most easily extracted, and making it thus an aid to the extraction of the other.

In the following descriptions of the different operations for resections of bones, the above rules will be recognised as correct in their general application; but various other methods, adopted by eminent operators, will also be given, as has been done in the preceding chapters on the ligature of arteries and amputations, to enable the surgeon to exercise his judgment intelligently in individual operations.

*Incisions*.—Various incisions have been recommended by different operators, of which the following are the principal:—The straight, ———; the crucial or + or ×; the H; the T; the L; the V; the elliptical, ; the quadrilateral, ; the elongated, ; the , &c., &c. Of these incisions the straight is adapted to the greatest number of cases, and by many surgeons of great experience in



resections is exclusively made. The straight incision certainly has the advantage over all others, of not dividing the tendons, and but, slightly exposing the blood-vessels and nerves to injury. There are instances, however, in which a combination of the forms given will be found useful, in order to completely expose the parts to be removed. The incision should in general be made as nearly as possible over the bone to be removed, and distant from important blood-vessels and nerves; the soft parts should not be destroyed, except so far as they have undergone degeneration, or interfere with the proper closure of the wound. Injuries to blood-vessels and nerves lying in the track of the incision should be scrupulously avoided by drawing them aside. Muscles and tendons should not be divided, and their attachments to bones should not be incised, but separated to the least practicable extent with a blunt instrument, as the handle of a scalpel. *Isolation of the Bone.*—The bone being exposed to the desired extent, the next care of the operator should be to preserve in the wound, and as far as possible in its original position, the periosteum of the bone to be removed, in order to the reproduction of sufficient new bone to preserve the function of the part; in this manner the lower jaw may be completely excised, and subsequently sufficiently reproduced to preserve nearly the original contour of the jaw, and in part, its function. The periosteum is best preserved by first incising it to the extent of the bone to be removed, and then separating it with the handle of the scalpel carefully inserted between it and the bone. *Removal of the Bone.*—The periosteum being separated, the bone, if short or flat, may be removed with the forceps; but if a long bone, it must be divided in its shaft by cutting forceps or the saw, and each portion separately removed, before the saw is used, the soft parts should be carefully protected by compresses or a spatula introduced underneath it. In removing diseased bone, Sedillot recommends scooping out



the affected parts, and leaving the cortical portion in preference to the removal of its entire structure; the reproduction of bone is much more rapid and complete, when this portion is left, than when only the periosteum remains. *Dressings.*—If any considerable vessel is divided, and continues to bleed, it should be ligated, as subsequent hemorrhage will greatly interfere with the process of repair. When short or flat bones, and the shafts of long bones are removed, in whole or part, the wound is generally at first filled with lint, to promote granulation from the bottom; and when the articular extremities are excised, and it is desirable to obtain subsequent motion or ankylosis, other dressings are to be employed. These special dressings for individual cases must be left entirely to the direction of the surgeon. *Classification.*—Resections may be divided into resection in the contiguity, or, which is more practical, partial and complete resections; the former term implies the removal of but part of a bone, and the latter the extirpation of the whole bone. *Partial Resection.*—In long bones, partial resection may be made, as of a portion of the shaft, or of the extremity; in flat bones, portions are removed with the trephine or the gouge; and, in short bones, processes may be excised, as in the vertebræ. *Complete Resection.*—Total resection, or the extirpation of entire bones, has been practised on some of the larger and more important bones in the skeleton; thus the radius, ulna, tibia, fibula, clavicle, and scapula, have been successfully removed, the patient not only recovering from the operations, but in many cases the reproduction of bone has been so complete as to restore to a considerable extent the function of the part.

## FRACTURES.

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In surgery there are many subjects that require the most particular attention of the student, who aspires to become qualified to operate upon the living being; while a young gentleman who designs to be a practitioner of medicine merely, will pass over these topics lightly. But, I commence to-day, gentlemen, the examination of a subject which cannot be slighted, but must be carefully studied and thoroughly understood by every one who assumes to practise physic, whether he calls himself a surgeon or not. You, no doubt, anticipate me as alluding to the subject of *Fractures*.

Almost all the bones of the body are liable to be broken, and every man practising medicine will be called upon to set a broken bone, as it is called. The lesions are sometimes very simple, readily detected; at other times, they are difficult to diagnosticate; but, easy or difficult to ascertain, it is expected certainly that any doctor will be able "to set a broken bone." You will find, as we go on, that the consideration of fractures involves a knowledge of many things, and is a topic which, in itself, is very extensive. I shall first examine this subject with reference to its general bearing, and having considered the various phenomena of fractures, means of consolidation, and general treatment, I shall pass to the examination of the means to be resorted to in the management of particular fractures. Here I shall make supposititious cases. I will adjust to an imaginary patient the apparatus, which, in similar cases to those supposed, I think the best to be adopted.

To facilitate your studies, I shall examine this subject in the following order :

1. Definition.
2. Varieties:—A. According to severity. a, simple; b, compound; c, comminuted; d, complicated.  
B. According to direction. a, transverse; b, oblique; c, longitudinal.
3. Bones most liable to be broken.
4. Causes:—A. Predisposing. B. Exciting.
5. Symptoms.
6. Diagnosis.
7. Prognosis.
8. Manner of healing:—A. By callus. B. By fibro-cartilage.
9. Time required to effect union.
10. Treatment:—1st. Indication. To coaptate the parts.  
2d. To maintain them in apposition.  
3d. To counteract abnormal symptoms.

The definition is a simple matter. I have no doubt you all know that the term Fracture means a broken bone; still, it is not my business to take it for granted, but my duty is to infer that you know nothing about it, and, therefore, I tell you that by the term fracture is understood a solution of continuity in a bone. This is more refined than to say a bone is broken. But as fractures may occur in several ways, so as to occasion simple or severe injuries, or as they may happen in different directions, they have been divided into varieties. According to severity of injury, they are divided into *simple*, *compound*, *comminuted*, and *complicated*. By simple fractures is meant a solution of continuity in the bony structure, accompanied by comparatively slight injury of the surrounding soft parts. In all these accidents, the parts which envelop the broken bone are generally more or less injured; but unless the amount of lesion be very great, the case is called a simple fracture.

The next variety is compound fracture. By this term we understand that form of solution of continuity which is accompanied by disruption of the soft parts, and through the opening a communication is established with the cavity of the fracture, or the space between the fragments. There may be a solution of continuity in a bone, with disruption of the soft parts, and still the fracture be not compound. The break may be a simple fracture, with a wound. It is very important that you bear in mind this distinction. Either variety of accident is quite severe, but a compound fracture is far worse than the fracture with a mere wound.

Comminuted Fracture is that form of injury, in which the bone is broken into many pieces. Complicated Fracture is that variety, in which, in addition to the breach of osseous matter, the end of the bone is displaced or removed from its articular connexions, an artery is disrupted, a vein is lacerated, a nerve torn, or very great injury is done to the surrounding soft parts.

The next division is according to the direction of the fracture. The bone may be broken transversely to its extent, in an oblique course, or parallel to its length. The first form of lesion is called *Transverse* fracture; the second, *Oblique*; and the third is named *Longitudinal* fracture. This last is a rare injury; the others occur frequently; and in them the bones are not broken smoothly off, but the fractured ends are more or less rough or jagged. Although all the bones of the body may be broken, some are much more liable to be so than others; thus superficial bones are readily fractured, while those deeply covered by muscles are by no means so easily broken. Bones which are levers, or passive organs of locomotion, are more likely to be fractured than those which form the walls of cavities; thus the bones of the skull are not often broken, while those of the arm are; and the same remark is applicable to the pelvis and inferior extremities.

The *causes* of fracture are divided into Predisposing and Exciting.—The predisposing causes are several, and they may be divided into local and general. Among the first, or local, may be mentioned the position of the bone, its functions, conformation, and necrosis, or other local disease. Of all the bones in the body the clavicle is most frequently broken. There are many circumstances which combine to predispose it to such an occurrence:—1st, its position is superficial and exposed; 2d, its functions and conformation subject it to many of the causes of fracture; and 3d, its muscular connexions aid in forming the tendency referred to. The same remarks apply to the bones of the forearm, and, indeed, more or less forcibly to all the bones which form levers, while the parietal bones are comparatively not subjected to the same influences.

The general predisposing causes are, season, age, fragilitas ossium, and general disease. The principal diseases that act in this manner are said to be scrofula, cancer, and syphilis. In former times it was imagined that a low temperature operated directly upon the bony tissue, rendering it brittle, and thus directly predisposed to fracture. Although this is not the proper view, it is nevertheless true that these lesions are far more frequent in cold than warm weather; but the explanation is very simple, when we remember that falls, and other accidents, happen oftener in one season than in the other. As life advances, the bones break more readily than in youth or middle age. This is readily explained, if we examine the composition of bone at the different ages. According to Berzelius, the middle-aged healthy osseous tissue yields fifty-one parts phosphate of lime, twelve carbonate of lime, two of fluuate of lime, one or two of phosphate of magnesia and soda, and thirty-three parts of animal matter in every one hundred. In the young subject the gelatinous substance exceeds this ratio, while in old persons the earthy matter is in relative excess; and, moreover, other changes in the

structure occur as life advances, which aid in augmenting the predisposition.

By the term *Fragilitas Ossium* is meant a brittleness of bone. Analysis proves that in persons thus affected, there is a deficiency of animal, and a redundancy of earthy substance. We know the pathological condition, but we cannot satisfactorily explain its cause; although this disease is said to occur more frequently in Europe, in manufacturing districts, where there is a want of good food and other necessities of life, than in this country. In some persons there appears to be an inscrutable condition of the bony structure, which renders them peculiarly liable to fracture, and there is no external indication to enable you to judge when this tendency exists. In 1844 I attended a girl, four years old, with the third fracture of the clavicle. Subsequently I learned she had broken her arm; and still she seems to be perfectly healthy, except this peculiar tendency. You will find similar cases reported by Dr. Gibson and others. Scrofula, cancer, syphilis, &c., are supposed to produce a cachectic condition of the system, which renders the bones more liable to be fractured.

The *exciting causes* of fracture are external violence, or muscular action, or as occurs in many cases, both these influences operate together. The first, external violence, produces the fracture either by direct application to the part, producing a solution of continuity at the site of lesion, which is generally accompanied by severe injury of the surrounding soft parts; thus a severe blow upon the clavicle occasions a fracture, usually transverse, under the spot upon which the blow was received. The same cause frequently operates indirectly; as, for instance, a man falls upon the shoulder heavily, the force of the blow and weight of the body produce a fracture of the centre of the clavicle, which is generally oblique in its course. This kind of accident is not usually accompanied by marks of as much injury to the contiguous parts as when the cause is applied directly.



In the skull, indirect violence often produces fracture upon the opposite side to that upon which the injury is received. This form of accident is called fracture by *counter stroke*.

Fractures are frequently occasioned by falls, and it often happens in injuries of the inferior extremities, especially, that the break does not occur until after the fall happens. Mr. Samuel Cooper, in his Surgical Dictionary, refers to the case of the celebrated French surgeon, Ambrose Paré, "who being kicked by a horse, endeavoured to get out of the way, but instantly fell down, and the two bones of his left leg, which had been fractured, being impelled by the weight of the body, not only passed through the skin, but even through his stocking and boot."

Baron Boyer reports a very similar case. "A young man, about twenty years of age, who, in a standing posture, was struck on the middle of the thigh with the pole of a carriage, which fractured the femur. The patient fell down, and in the fall the upper fragment was not only driven through the muscles and integuments, but also through his breeches."

About ten years ago, one of my patients, who was slightly inebriated, was knocked down by a wagon and one of the wheels passed over his right leg. He was raised up by a couple of his boon companions, who, fearing his limb was broken, wished to have him carried home; but he insisted his leg was only bruised, and that if they would help him on his feet to the sidewalk, he could and would walk with them. After some difficulty they got him to the pavement, and upon his feet. He walked along for about one hundred feet; but, in attempting to pass a curb stone, his foot gave way; he fell, and it was then discovered that both bones of the leg were broken. I saw him very soon afterwards; and, notwithstanding his assertions that the *left* leg was the hurt one, I adjusted an apparatus to the *right* limb, and after much difficulty a cure was effected.



Violent muscular action will sometimes produce fracture, as in the olecranon, after great contractions of the triceps humeri muscle, or in the patella, under the influence of the quadriceps femoris muscle. As I have said, muscular action sometimes produces disruption of a bone, but generally this cause operates conjointly with external violence.

The *symptoms* of a fracture require a careful examination before the surgeon is justified in speaking positively as to the nature of the injury. I know that in this remark I differ from the vulgar notion; but, gentlemen, in the practice of surgery, "it is the easiest thing in the world to be mistaken;" therefore when you are called to see a case of supposed fracture, be most careful in your scrutiny and ascertain all the facts in the case before you utter your views. You had better be very slow in making up your mind, and then be right, than for the sake of gulling the by-standers, affect so much smartness as to jump at a conclusion after a superficial examination, in which case you may express an opinion which a subsequent proper examination will prove erroneous; and to correct which you will be put into such a position as to be obliged either to make a mortifying acknowledgment of your blunder, or else give such contradictory explanations as will destroy the confidence of the patient and his friends in you. In such cases think well of the maxim, "*Festina lente*," before you oracularly give your opinion.

From what I have said, you will understand that the signs of fracture are by no means so certain, or the accident as easy of diagnostication as many persons imagine. I wish you to remember that great care is necessary in the examination of a case before you decide upon its nature, and commit yourself to an opinion. The symptoms present are usually, 1st, pain at the site of injury. If a nerve be near the affected part, this is sometimes excruciatingly se-

vere, and in ordinary cases is liable to exacerbations from muscular contractions, producing displacement of fragments. 2d. Preternatural mobility of parts. As a general thing, a patient has very little power to move a fractured limb, because of the agony such effort occasions; but the surgeon can readily effect more motion than the part is capable of in a healthy condition. 3d. Swelling of the parts, and displacement of fragments.

“*Swelling* invariably occurs, and is of three kinds. 1st. The displacement and overlapping of the fractured ends produce greater or less enlargement of the part, immediately after infliction of the injury. And if muscles be relaxed by the displacement, the bulging into which they are consequently thrown will contribute to the immediate swelling. 2d. The first swelling is increased by extravasation of blood, which inevitably follows solution of continuity in the bone, and co-existent laceration of the soft parts. If any considerable vessel have been injured, this kind of swelling may prove very great; partly by blood accumulating around the fracture, partly by its being infiltrated into the surrounding tissues. 3d. The second swelling, in its turn, is followed and modified by that which attends on inflammatory action, beginning to form after the lapse of some hours. The tissues then become infiltrated; partly by serum, partly by fibrinous exudation.” \*

The displacement of fragments may be occasioned directly by the violence producing the fracture, as when the arm is broken by a severe blow, or a piece of the skull is broken and driven in by an injury; or it may be produced by the weight of the limb dragging down the lower or outer piece, as frequently occurs when the acromion or clavicle is broken. In oblique fracture, displacement is much more common than in the transverse variety. In the former the shape of the fragments greatly facilitates their separation,

\* Miller's Principles of Surgery.

while in transverse fraeture the surfaces are so broad that they rarely slip, or are drawn past each other; and in many instances the parts are so locked together as to form an "*Impacted Fracture*," in which there is generally very little, if any distortion.

But of all causes, museular contraetion is the one which most frequently produes displacement in the extremities. In these cases the lower fragment is usually drawn out of its position by the unnatural action of the museles which pass over and upon the limb. A strong evidence of the power of the museles in this way is found in paralyzed limbs in which fraeture occurs. Here there is hardly any displacement, except as it is produced by the original cause of lesion, or the weight of the limb.

The *direction* of the displacement will vary according to the variety of fracture, its location in reference to museles, or the weight of the limb. The deformity may be *angular*, *transverse*, or in the diameter of the bone; *longitudinal*, or parallel to its axis; and *rotary*, or in the circumference of the limb.

The most certain sign of fracture is *crepitation*,—a grating noise made by rubbing the fragments against each other, which can readily be done in almost any fracture, except where the parts are impacted. In the examination of a suspected fracture, too much gentleness cannot be shown, nor can an excess of caution be manifested. The remarks of Professor Miller on this subject are so practical and appropriate, that I will quote them entire for you:—

"The manipulations necessary to ascertain the nature of an accident, and which are especially directed towards detection of erepitus, are to be conducted with all gentleness, so as not to produce unnecessary pain, or endanger further injury to the soft parts, with aggravation of subsequent inflammatory action; and yet with determination sufficient

for fully satisfying the examiner as to diagnosis. It is much better that one thorough examination should be made at once, painful though it be, than that more gentle movements and inquiries should be made, with frequent repetition, delaying the means of cure. Also, let it be borne in mind, that, at whatever cost of suffering to the patient, it is our paramount duty to make such a thorough examination, for two reasons. In the first place, in order that the required repose and treatment of the part may be immediately instituted; in the second place, and mainly, that error of diagnosis may be avoided. For, suppose that in the hip insufficient examination has led to the latter event—that a fracture is believed to exist, while in truth the injury is dislocation. The ordinary treatment for fracture is applied, and continued for the usual period. On finally undoing the retentive apparatus, the true nature of the case may be for the first time disclosed—too late to remedy the evil. The patient remains a cripple for life; and an untoward event has happened to the surgeon's welfare and reputation. Anæsthesia is of great advantage here—especially in the young, and in those who from any cause are intolerant of manipulation. They are saved all suffering, and the surgeon, undistracted and in quiet leisure, deliberately satisfies himself as to the condition of every part—all the more readily and accurately because the muscles are rendered pliant and unresisting.

“The required examination may, usually, be conducted thus:—The patient having been arranged in a suitable posture, the distal extremity of the injured bone is taken hold of by the surgeon's right hand, while his left is placed over the seat of injury. With the right hand the limb is gently extended, till normal length is nearly or altogether restored; then, while extension is maintained, gentle rotation is made, and the fingers of the left hand are used coaptatingly, so as to force the broken fragments—if such there

be—to rub on each other, and emit the expected crepitus. At the same time, by another sign, it is made apparent that solution of continuity exists in the shaft of the bone, the lower fragment being found to roll in obedience to the rotating movements of the manipulator, while the upper, just as plainly, is unaffected thereby.

“It is obviously of much importance that the examination should be made at as early a period as possible; before spastic rigidity of the implicated muscles has occurred, which might oppose the required extension and coaptation, (if anæsthesia be not employed,) and before concealment of the relative position of the parts has taken place, either by the blood of extravasation, or by the exudation of excited vascular action.”

If a deeply-seated bone, or one surrounded by large muscles, be injured, it may be difficult, even with the most careful and properly conducted examination, to ascertain the exact nature of the lesion. In such cases, in addition to the ordinary means, the stethoscope may be very advantageously employed.

As I have before remarked, notwithstanding the popular notion that it is an easy matter to tell when a bone is broken, the *diagnosis* of fracture is frequently attended with much difficulty. This lesion may be mistaken for bent bone, or diastasis. Fortunately, so far as the treatment is concerned, such a mistake would be of small consequence. But sometimes this accident is closely simulated by dislocation. Here an error of judgment might lead to very troublesome consequences for both patient and practitioner. A proper remembrance of the symptoms I have detailed, and a careful, thorough examination of the case, will, usually enable the surgeon to detect the nature of the accident.

“I have already spoken of the mistaken notions of non-professionals in reference to fractures, and warned you,

gentlemen, that these lesions are by no means trifling accidents, but that they are frequently of such a serious nature as to require the exercise of your greatest skill, and the closest attention, to conduct them to a successful issue. In no branch of the subject is more judgment requisite or care necessary than in the formation of a *prognosis*, and the expression of an opinion as to the result in these accidents.

“You will be influenced in your judgment by many circumstances, and please be careful to give them all the fullest consideration before you express your views. From some of my remarks, you might also infer that I am overcautious, or disposed to attach too much importance to the subject under consideration, but, as I proceed in the lectures, you will learn, from the cases I shall detail to you, that such is not the fact. There are few more trying positions for the physician than in the case of a bad fracture, and hence my anxiety that you should be thoroughly posted, and avoid the difficulties into which some of your predecessors have plunged.

“Simple fractures are much more favourable than those which are compound, comminuted or complicated; a transverse break is less difficult to manage than an oblique one; here, from the shape of the fragments, the ends have a constant tendency to slip or be drawn past each other. A solution of continuity in the shaft is generally a less severe accident than one near to the ends of a bone. Fractures in small or superficial bones heal more readily than in larger bones, deeply-seated, and acted upon by many muscles. As a rule, fractures in young persons heal more kindly than in those of advanced age. In persons of impaired health these accidents are not so likely to proceed favourably as in robust individuals. Pregnancy is said to retard the union of bones, and, in some instances, to seriously complicate the case, but, in my own practice, I have not observed any special difficulty: in one or two instances I have supposed



that union was not so rapidly effected as in some other cases.

“Many other circumstances that I do not now mention may occur to modify your prognosis, but, if you remember what has been said thus far, you will be fully able to form a reasonable judgment in any case that may occur to you.

“To enable you to understand fully the *manner of healing* in fractures, it will be well for us to take a retrospective view of the condition of things after the occurrence of the accident. We will suppose a man has received a blow on the arm of sufficient violence to occasion disruption of the humerus. There is no external solution of continuity in the soft parts. The accident is a simple fracture. If a post mortem examination could be made soon after its occurrence, we would find a disruption of the bone in one of the directions I had mentioned, viz.: transversely, obliquely, or longitudinally. Very likely, however, the solution of continuity will be oblique in such a case as the one supposed. There will be observed, also, a lesion of the periosteum, laceration of the cellular tissue and muscles around the bone, and effusion of blood from these wounded parts. The fragments of the fracture will be seen enveloped in the bloody effusion. This condition of things continues for a longer or shorter time, and then changes take place, provided a cure is about to follow. In the course of twenty-four or forty-eight hours, there will be a great augmentation of the swelling, which is perceived soon after the occurrence of the accident. This increase of size is occasioned by extravasation of blood, coagulable lymph and serum; or, at first, by the coagulation of the blood alone, which is soon separated into its constituent parts. If we watch its progress from day to day, we will find the swelling gradually diminishes; and if a view could be taken of all the operations going on, we should see that the red matter of the blood was gradually absorbed or taken up, and



that its place was supplied by a white plastic matter called coagulable lymph. The fibrous structure of the blood remains, and serves to agglutinate the parts disrupted. This condition continues for a short period, a week, ten days, or two weeks, probably, more or less, or this state of things may last four weeks; but usually within two or three weeks after the occurrence of the accident, some matter of more dense structure is effused into, or takes the place of, and ultimately this matter increases in quantity, so as to form a kind of covering or bark-like investment around the contiguous broken fragments, and this covering finally assumes the cartilaginous condition, and the fragments are held together more or less firmly by this substance.

To effect this change, weeks may be required. The cure is not yet made. Bony matter is deposited in this cartilaginous substance, and ultimately the band of junction which previously was blood, afterwards coagulating lymph, and subsequently cartilage, is converted into bone. When this operation is completed, the fracture is said to be united. But union is not yet effected, although the surgeon permits the patient to use the limb. Thus far there has been no consolidation of the fragments, no plastic effusion has occurred between them, whereby they are tied together. There may have been formed a bony pin, which fills up the cavity. (Please understand I am explaining the manner of junction in long bones: a different method of union is formed in flat bones.) A cartilaginous pin is formed in the medullary canal, and the exterior of the fragments is surrounded by a bony ring, which constitutes the "*provisional callus*;" or, as it is termed by Paget, the "*ensheathing callus*."

Subsequently, after the lapse of many weeks or months, and it will require from six to twelve months to complete the junction, bony matter will be thrown out between the fragments, and they are agglutinated together, and then by a gradual process of absorption or modelling, the pro-

visional callus is diminished in size, and made to assume somewhat the appearance and condition of the limb.

The views I have given you, are the result, chiefly, of the experiments and observations of the celebrated French surgeon, Dupuytren. Previously to his time it was supposed that the blood was the bond of junction, and this notion was not far wide of the mark. Hunter adopted this hypothesis. Before this it was thought a bony juice was thrown out. I do not pretend to speculate as to the manner callus is formed. I am satisfied with the opinion that all the textures contiguous to the broken parts, aid in forming the substance by which coalescence of the fragments is effected.

I present you here several fractured bones that have become consolidated; in some of them very little deformity is observed, in other specimens the fragments have not been so well approximated, and the union is more or less irregular. Here is a specimen in which you might infer that one end of the bone had risen up and been retained in that position. This, however, would not be a correct inference. A rising end of a fractured bone is not so often met with as many imagine. It is said to be often seen in fractures of the clavicle. But in this case, as in most others, the risen end is produced by the weight of the limb, or other causes drawing down the other fragment, producing depression of its end when the upper piece maintains its natural position, and a union is effected, so that the outer end of the sternal fragment appears to be above the acromial piece. While lecturing upon the anatomy of the lower extremity, I explained to you, that in fracture of the femur, just below the trochanter minor, it often happened that the distal end of the proximal fragment was drawn upwards and kept in that position by muscular action, and this is one of the few cases in which there is a "rising end" in broken bones.

Most fractures unite in the way I have told you, but

notwithstanding this is the general method, there are exceptions to the rule, and you will find these exceptions within capsular ligaments, and contiguous to joints. You will learn that within the capsular ligament of the shoulder joint a bony consolidation is difficult to accomplish; and you will find it much more difficult to effect in fractures of the neck of the thigh bone within the capsule. I think it a very remarkable circumstance, indeed, to find a bony conjunction of a fracture of the cervix femoris entirely within the capsular ligament. I know many cases of a supposed osseous union are reported, but I apprehend the fracture in most of the instances passed to the outside of the ligament, so that the lesion was both within and outside of the capsule. These accidents generally occur in persons of advanced age, in whom the powers of the system are diminished, and the functions sluggishly performed; and, therefore, a smaller amount of blood passes to such parts than is furnished earlier in life. I do not deny the *possibility* of callus junction here, but I believe the cases of such union, few and far between.

As I have said there are circumstances in which a fibro-cartilaginous mass ties the fragments together,—and this is the second kind of union of which I spoke. You will find such junctions in the olecranon process of the ulna; in the patella, in the neck of the jaw, in the coracoid and acromion processes of the scapula, in the cervix femoris, and under certain circumstances in other situations. The general rule is, that fractures unite by callus instead of fibro-cartilage. This latter kind of union occurs very frequently, and may be a very good junction. It is still not equal to a bony union. In all instances every possible effort should be made to obtain a callus junction. But, in the cases referred to, the probabilities are against it; and, therefore, you must be particularly careful in your management, to insure a proper coaptation of parts, so as to afford

every facility for bony formation, and if you fail to accomplish this, a junction may be formed by as short fibro-cartilaginous bands as possible.

I do not inculcate upon you the necessity of daily opening the dressings and examining the fracture. On the contrary, I beseech you, after a proper dressing, to let the parts alone as much as possible, or until the bandages need re-adjustment. Of course I would have you see the case often enough to satisfy yourselves the fractured parts retain their proper<sup>1</sup> relative positions, as you should have left them at your first dressing. I know that patients will expect you to open the parts almost daily, to handle them and see if they are "knitting" properly. But, gentlemen, such a course is very bad surgery. The parts require rest to unite. I trust none of you will ever be guilty of such quackish conduct.

On the subject of union of fractures, you will find some very valuable remarks in "Miller's Principles of Surgery," and in "Paget's Surgical Pathology." I advise you to study them carefully.

As to the *time* required for the union of a fracture, I cannot speak with positive certainty; in some cases four weeks may be a sufficient time to effect a union as I have explained it, while in others twelve weeks may be required. But perfect junction rarely takes place under from six to twelve months. Be careful that you remember this. It may save you much trouble, and possibly a law suit for malpractice. Never express an opinion as to the treatment that has been pursued in these cases. I will tell you a story to show the necessity of doctors being very careful how they express their notions in reference to the treatment which has been pursued in the management of fractures about joints, or injuries of bones. It so happened that a Mr. A., accompanied by judge B., waited upon Dr. C. of the city of ———. Dr. C. was a very fashionable

physician of twenty-five years' experience. Mr. A. said to the Doetor, "I want you, sir, to examine my arm." The Dr. made the necessary examination, and informed Mr. A. that his elbow had been dislocated. "So I thought," replied Mr. A. "Oh, there was no difficulty in ascertaining that," says the Dr. "Why," continued he, "did you not have a doetor when the accident occurred?" "I had one of the best physicians, as I supposed, in my neighborhood," replied Mr. A. "He did not know his business," quoth the Doetor. "What did he tell you?" "He told me he had reduced the displacement." "He told you he had reduced the dislocation! I would sue such a man for malpraetice." "You would?" "Yes, most certainly." "Then, Judge B., I think the best thing I can do, under Dr. C's. advice, will be to enter suit against the physieian." "Who was it?" "Dr. C. of ———; it was no other than yourself; you are the man,—the accident happened ten years ago." "I set it, and you did not obey my directions, and the present deformity is the consequence. You may begin a suit as quickly as you please!" After some farther conversation, the doetor somewhat modified his talk, and Mr. A. told him he had long been satisfied nothing could be done to relieve him, and as he had not seen Dr. C. for several years, he thought he would present his arm, to see what he said.

But, suppose Mr. A. had followed Dr. C's. advice, what trouble he might have got into because of his inadvertence. You must be eareful how you promise suecess. You will be asked by the patients, will the limb be straight? You have reason to say, we hope so. Will it be as strong as before? Yes; probably stronger. It is a faet, that sometimes after a fraeture, the part broken is stronger than before the accident. If the fraeture be below or above the nutritious canal, in the direction of the course of the vessel, it will be stronger than previously, because an excitation is established in the part—a great afflux of blood fol-

lows, and an excess of bony matter is formed, which assumes, ultimately, the form of the bones in the natural condition. We cannot determine as to the time that is requisite for the consolidation of a fracture. Fractures of the superior extremities are sooner healed than those of the inferior extremities; small bones more readily than large bones; fractures remote from a joint sooner than those near a joint. If one bone is broken, junction is more favourable than if two are fractured.

There are a great variety of things, in reference to this matter, as in others of which I have spoken, to influence you in the formation of an opinion. - You will refer to the age of the patient, coaptation of parts, habits, health, &c.

There are three prominent indications in the *treatment* of fractures. 1st. To coaptate the fragments. 2d. To maintain them in apposition. 3d. To counteract abnormal symptoms. As I have remarked, the first indication is to coaptate the fragments, reduce the fracture; or, in common parlance, to "set" the broken bone. To enable you to understand how this is to be done, it is necessary to remember the condition of the injured parts, and the muscles which operate upon them. I have not yet lectured upon the different fractures, and I can hardly refer to the special kinds of derangement which may be present, and to the muscles which particularly operate in the induction and maintenance of the displacement you may observe; but from the general observations I have already given, you are aware that when displacement occurs, it is generally owing to the removal of the distal fragment, and that the part is kept in its abnormal position by the contraction of the muscles which are inserted into it, and, therefore, the great cause which we have to counteract, or the great operating influence, in, first, the production of displacement, and, subsequently its maintenance, will be muscular contraction. Sometimes the position of the fractured parts, or the displacement into which they were forced at



the time of accident, will be the cause chiefly complicating reduction; but, as a general thing, and it is a rule of almost universal application, you will find that muscular contraction is the efficient cause, first, of the displacement, and, second, the continued malposition of the parts. In all the fractures I shall show you, the muscles are the principal causes of deformity: the bones have no influence in producing displacement; they are mere passive levers. From these remarks you will infer, if you take a proper or philosophical view of the matter, that the natural indication is to put the limb into as easy a position as possible. There is no use in resorting to force upon the part until you have relaxed the principal muscles; you may pull and haul until you are tired, and the only effect will be to aggravate the mischief, occasion permanent contraction of the muscles, and induce violent inflammatory excitement. Therefore I advise that you do not resort at once to active traction; such a course would increase the symptoms, and might lead to terrible consequences. But although inflammation may be present, it is your duty to try to coaptate the fragments. If you find the inflammation is exceedingly violent, and the limb can hardly be touched without increasing it, let the parts alone; do as common sense would dictate: reduce the inflammatory action as quickly as possible by the administration of nauseants, gelsemin, aconite, or veratrin; or if the lesion be in a superior extremity, by the use of saline purges in addition, and by the local application of cooling washes, discutient or evaporating lotions; resort to every method for the purpose of subduing the preternatural action; and although you will frequently accomplish the object by these means, it is nevertheless true that the most efficient course to effect the result will be to place the fragments as nearly as possible in apposition, then leave the case for a few hours under the treatment I have indicated, and you will frequently be surprised to find the broken parts coaptated by the action of the muscles around.



On this subject I advise you to study carefully the article on Fractures in Mr. Abernethy's Lectures on Surgery.

Do not imagine, gentlemen, that I waste your time if I do occupy several hours with this theme. Should I lecture half a course on fractures, if you got proper ideas of them, I would think the time well spent. Too little attention is generally given to this subject by students. Many of them, I am sorry to say, have the idea that all that is to be done in fracture of the clavicle, if that be the bone broken, is to put on Fox's apparatus; in fracture of the arm, to apply three or four splints and a roller, or to put on Physick's Desault's appliances for fracture of the thigh. This is a grand mistake. The surgeon who is properly acquainted with the philosophy of this part of our science, can treat fractures successfully without employing these arbitrary arrangements. A man may dispense with *these* splints, and, if he have nothing better, use the bark of a tree, or an old band-box. I have been so situated; and before you are aware of it, you may find yourselves in a similar predicament. I do not undervalue the ingenious arrangements of inventors. As I proceed I shall exhibit many of them. I will show you many pieces of machinery devised for the management of fractures. I will explain their adjustment, and demonstrate very fully the application of bandages, and I desire you to give close attention to these practical instructions; but I wish you to know that although arbitrary rules may sometimes be very useful, you cannot manage these accidents without a thorough knowledge of the anatomy and functions of the parts involved, and have judgment enough to adapt your appliances so as to meet the peculiarities of each case.

Put the limb in as easy a position as you can, employ the treatment I have mentioned, and, as I have said, you will often be surprised to find that coaptation has occurred in your absence. A notion that great force is necessary to "set" a broken bone is almost universal among people out

of the profession. This is a popular delusion; for, as has been explained, gentle means and proper treatment frequently accomplish more than can be effected by the most vigorous or forcible efforts of the surgeon and his assistants. In these cases, gentlemen, be like the Indian, do head-work, instead of physial labour; and then charge a good fee for your "head-work," rather than for humbugging the people around you.

I remember a case of compound fracture that occurred in my practice a few years ago. The man was injured away from home, but very soon after he was brought there, his house was nearly filled with people to find out what was the matter. The tibia and fibula were obliquely broken, and there was an external wound communicating with the fracture. I cleared the room as much as possible, but still several persons would remain. All I did in the case was to get a common fracture-box, and put a pillow covered with oiled silk into it. Upon this I placed the limb as gently as possible, gradually brought the foot into its natural position, passed my fingers over the leg, and made slight pressure at the broken spots, put a rag wet in cold water over the wound, and after fastening the foot, tied up the sides of the box, and got ready to leave as soon as I gave my directions to the man's wife. Some of the people in the room said to me, "Doctor, are you not going to set the limb?" "It is 'set,'" said I. If I had adopted the method frequently pursued, I should have grasped the limb above the ankle, set my teeth, and made a great hauling over it. The limb, then, is to be placed in an easy position; and if you find the posturing of the parts is not followed by coaptation, you may run your fingers over them, and probably by a little modelling the fragments will be forced into position; but if you find this cannot be effected, and that the pieces are separated, or one pushed over the other, it may be necessary to resort to some greater force to enable you

to coaptate the fragments. Surgeons call the power thus applied, *extension* and *counter-extension*.

Extension is the force which is applied to the distal end of the bone; the power used on the proximal extremity is called counter-extension. If I had a broken leg, and a man were pulling at it, he would make extension, and the whole limb would be likely to go with him. To counteract this, resistance must be made above the fracture. A certain force has to be applied to antagonize the traction made at the lower part of the bone. The inferior fragments should be drawn away from the upper, which is to be firmly held in a natural position, or as nearly so as possible; at the same time the surgeon ought to apply his fingers to the injured parts, and by proper pressure try to place them in a normal relation. This is the course that is to be adopted; and notwithstanding these means are spoken of as necessary in almost all fractures, they are in very many instances positively injurious; for although I tell you that in some cases their application is indispensable, I assure you with great positiveness that in many others they are to be avoided. Suppose, for instance, a man has fracture of the olecranon. What is the condition of the parts? The olecranon is drawn up by the triceps extensor cubiti, a great gap exists between the fragments. You pull at the wrist, while counter-extension is made at the shoulder. What is the effect? Why, you separate the fragments to a greater extent. The space is increased between the pieces more and more, and by the time the doctor has worked himself into a free perspiration he finds that instead of coaptation being effected, the gap is far greater than when he began. So in fracture of the coracoid process of the scapula—a rare accident, by the way—the more you pull at the arm, the more you separate the fragments. The coraco-brachialis muscle arises from this point, so does the short head of the biceps flexor cubiti, and the pectoralis minor is inserted into it. A man with

fracture of this process falls into the hands of a so-called surgeon who follows the arbitrary rules of the books, in violation of that great gift of Providence—common sense. He applies extension, and, to his surprise, the fragments get farther apart than before. The course to be pursued in these cases is to place the parts in as easy a position as possible, so as to relax the muscles about, and coaptation can be generally readily more or less perfectly effected. The same remarks apply to fracture of the patella, a bone that is often broken transversely. The greater the extending force applied to the leg, the more the fragments separate. And why? Because the quadriceps femoris muscle contracts and draws the proximal fragment upwards, while the traction made on the leg pulls the distal piece downwards, and thus increases the gap. So that, although I speak of extension and counter-extension as very necessary in many cases, there are other instances in which they are positively contra-indicated. Put the limb in an easy position, relax the muscles, and, as I have before said, you may find coaptation spontaneously effected.

After a fair trial of the course I have mentioned to effect reduction, if you find you cannot succeed, there is one means to employ that will in most instances aid effectually to accomplish the object. I allude to the use of some anæsthetic. I prefer pure sulphuric ether to chloroform alone; but I frequently employ, and very satisfactorily, a combination of the two, in the proportions of six parts ether to one of chloroform. This article, properly administered by inhalation, will usually produce a condition of such perfect insensibility that the manipulations necessary are made without the induction of irritation or pain, and which could hardly be borne under other circumstances.

We pass now to the second indication, which is to maintain the parts in apposition until union is effected. Suppose now you have got the fragments into a proper position,

what will you do with the limb? Dr. Dudley, the great surgeon of Kentucky, taught that it should be enveloped in bandages, and then let alone. Dr. Dudley was a very great man, and might have understood the application of bandages better than most others; but this is not the course usually pursued by surgeons. They will tell you to put on bandages and splints, or some machinery to answer their purpose. A single strip of bandage, rolled tightly, is named a roller, or a single-headed roller. This is the bandage generally employed to keep parts in apposition. The loose end is the tail, the opposite extremity the head, and the intermediate part is the body of the roller. If a strip be rolled from each end, it is called a double-headed roller. When the bandage is cut longitudinally in the centre, so that in its adjustment the ends are passed through the fissure, it forms a uniting bandage. The material should be some soft substance, generally muslin that has been washed and ironed, in which there are no seams, no selvages or knots. You may make bandages of muslin, flannel, or any other substances presenting the proper characteristics. They should be as narrow as possible, so as to be readily adapted to the inequalities of parts, and of sufficient length to be wound properly and fully around the limb. It is best to avoid the employment of pieces sewed together; but as you cannot always find long strips, it is necessary to know how to put them together. If you have a piece two yards long, tear it into strips, and place the ends so as to overlap each other; then sew up and down, so as to make a flat seam. In the preparation of a bandage, be especially careful to remove the selvedge. Some of you may possibly be candidates for admission into the medical service of the Navy. When you go before the examining board—they are well-informed gentlemen, who from their position can know or show no favour—some member will hand you a piece of muslin, and request you to apply it to a bust on a table for a supposititious fracture of the lower jaw, unless

they have changed their course within a few years. The candidate will look at the muslin, and tear off the selvedge; then he should make a strip an inch and a quarter or an inch and a half wide, and about six yards long, and form it into a roller. If the muslin be new or glazed, he should politely say to the examiner, "Sir, this is not the proper material; it should have been well washed and ironed to remove the glazing, and make it soft; but I will do the best I can with it." If he make no explanatory remarks, but tries to adjust the bandage, to show his smartness, he will fail most signally, and not reach the desired position. And by the way, if the same bust be presented to you they used ten years ago, be sure and apply the bandage devised by Dr. J. R. Barton, at the same time respectfully explaining that you believe it the one most readily adjustable to the bust.

"But," you may ask me, "how is the bandage to be rolled? By machinery?" I reply, "Oh yes, by pieces of most extraordinary mechanism, consisting of eight fingers, two thumbs, and a knee." Double your bandage so, as to form a kind of head on which you can roll, hold the piece tightly and roll away, at the same time keep it straight upon your knee. Be careful to make the mass as firm as possible, have the bandage tight and the edges as smooth as you can get them. If the strip be not tightly rolled, you will find it almost impossible to apply it properly to a limb.

There are fractures to which the ordinary roller cannot be applied. In such cases you will find the bandage invented by Scultetus, a celebrated German surgeon, a very convenient arrangement. It is made of several pieces of such lengths as may be necessary to fit the limb, placed one upon the other obliquely, so that each one covers its predecessor about one-third its width. The application is commenced with the lowest, and the strips are applied in rotation, so that one overlaps the other upon the limb. This manner of adjusting slips is much preferable to the many-tailed bandage



previously in use; it can be more neatly applied, and if a slip get dirty, its place can readily be supplied with a clean one, thus:—Spread out the different pieces, pin a clean slip to the end of the one you wish to remove, have an assistant press with his hands upon those contiguous, then draw the opposite end of the dirty piece, and you will gradually substitute the clean one in its place, without disturbing the rest of the apparatus.

For maintaining the parts in apposition you will generally require some piece or pieces of a firm material, around which the bandages may be applied. These are called splints, and they may be made of board, bark, leather, tin, iron, cloth, pasteboard, or hat felt soaked in gum shellac. This, after heating, can be readily applied to a limb, and when cool it retains the form it was made to assume while hot. The cloth splint is made by dipping the material in a solution of varnish or gum shellac in alcohol; a very ingenious arrangement of this kind was devised by Mr. Calver, Secretary of the Board of Trustees of the Eclectic Medical College of Philadelphia, a full account of which you will find in Dr. Paine's Eclectic Medical Journal. In addition to these, I should mention splints made of straw; they are "made by filling a linen bag of the size of the splint required, with unbroken wheat straw, such as is used in thatching; the straw being cut to the length of the limb, and the open end of the bag then sewn up. This is both splint and pad in one, and may often be of great service in country and military practice." And besides these, gutta serena may be employed, as I shall explain more fully when I speak of special fractures. If splints be made of an unyielding substance, they should be covered with some soft material, to prevent abrasion or undue compression. For this purpose tow, raw cotton, not wadding, or flannel, is used. The flannel is the best. A splint may be padded with it in this way:—Cut the flannel into pieces a little larger than the splint, place them upon it, and by the proper adjustment of



a roller they will be kept in position, an equable pad is made, which does not become lumpy like cotton or tow, but maintains its shape, and answers the purpose well. In large limbs the splints may be covered with a pillow, or protected by bags filled with bran. As substitutes for splints and bandages, some propose contrivances of leather or wood, with straps and buckles attached.

“How are you to apply bandages?” There is an art in this, as well as in anything else. You apply a bandage by circular and reversed turns, and this you can only learn by frequent practice upon yourselves or others. I may demonstrate this matter again and again, but you will never know how to do it without frequent practice of your own; still, a little instruction will aid you. For instance, I will apply a bandage to the arm. I commence by fastening it to the hand by a few turns, then pass up the forearm by circular and reverse applications, making the reverse turns as I meet inequalities in the limb, then carry it around the elbow and the arm, and fasten near the axilla with pins, or a few stitches. I have not wet the roller, as is sometimes necessary; it makes a prettier bandage, and, under certain circumstances that I may mention hereafter, it becomes necessary to wet it; and please remember that such a bandage becomes loose after it dries, and, vice versa, if you apply it dry, and then wet it, the roller gets tighter, and the part be injuriously compressed. In making a splint, be careful that it is of proper size to answer the purpose. In some fractures it should be long enough to pass above and below the contiguous joints, and of such width as not to compress the injured parts, while in other cases they may be required short, and so narrow as to bind the limb. In some instances splints should be applied before the bandage; in other cases, afterwards, e. g., in fractures of the arm, the roller may be applied, and the splints over it, while in similar accidents to the forearm, the splints, properly padded, must be adjusted before the bandage. Hereafter

I will explain the reasons for these different courses. Sometimes it is necessary to apply splints in such a way that you can make fastenings to them for extension and counter-extension, as I shall demonstrate in various fractures where such a course is requisite. After applying your apparatus to maintain the parts in apposition, keep the limb in a quiet position, and, in favourable cases, the changes which I explained will go on until consolidation occurs. In taking off the bandage, the practitioner should be careful not to allow it to drop from his hand. A surgeon should never make an unnecessary fuss in doing any operation he may be called upon to perform. If a man has capacity, it will be found out; if he has none, all the noise he can make will never convince people he has professional merit.

Besides the means mentioned to accomplish the second indication in the treatment of fractures, other contrivances have been suggested. At one time it was proposed to envelop the limb in a coating of plaster of Paris, after the coaptation of the parts. It was supposed that after the hardening of this medium, it would effectually prevent motion and keep the parts in apposition. But, although after a few trials it was thought to act serviceably, it was soon found to be objectionable; it renders the limb cumbersome and heavy, and is, moreover, so brittle that it is constantly liable to be broken. It, therefore, speedily went out of use. But for a long time previously to the mention of plaster of Paris, surgeons had applied themselves to the examination of various materials with the view of discovering something which would be more satisfactory than the means previously employed, viz.: the adjustment of splints and bandages to the parts affected. The result of these investigations has been, that various forms of apparatus have been devised called immoveable. One of the first of which we have an account is made by quilting strips of whalebone, or pieces of splint, between two surfaces of cloth. The machine thus made can be applied and accurately adapted,

it is said, to the limb; but this substitute did not long maintain its ground. Afterwards other courses were adopted, different kinds of varnish were used as applications to cloths to stiffen them, and render them efficient for the purpose desired. Among the best of these is the 'moulding tablet' of Mr. Alfred Smee, an English surgeon. 'It is composed of two layers of coarse old sheeting, stuck together with a mixture of gum-arabic and whiting. It is easily prepared by rubbing very finely-powdered whiting with mucilage of gum-arabic, till it acquires the consistence of thick paste, and then spreading this on the surface of the sheeting, which is to be doubled on itself; it dries without shrinking, and becomes remarkably hard and tough, and may readily be softened by sponging it with hot water, so that it may be adapted with the greatest accuracy. The appliance now known as the proper 'immoveable apparatus,' was got up since 1830 by Sueten, a French surgeon, who served at the siege of Antwerp. It occurred to him that by properly adjusting starched bandages and paste-board, that broken parts could be maintained in a quiet position, and so kept until coaptation of fragments resulted. He supposed this course would possess many advantages over that usually adopted, and he evolved his thought by the application of starched bandages and pieces of paste-board to broken limbs. He found the result satisfactory, and since his introduction of it, this form of immovable apparatus has been employed in numerous cases. It is lauded by many, and as much condemned by others. To explain how it is made, I will suppose we wish to apply a retentive apparatus to a fracture of the arm. Two rollers, two inches to two and a half wide, and six yards long, are required; the end of a bandage is to be thoroughly saturated with prepared starch, its application is to be commenced at the hand, and as it is adjusted by continuous turns, the starch is freely applied by a brush to the new parts of the roller, so that by the time the limb is wrapped, the roller is tho-

roughly covered with the starch. The roller is still soft and flexible, and may assume any position in which the limb happens to be placed. Over the bandage are placed properly conformed pieces of pasteboard, which have been previously well soaked in water and dipped in the starch; over the boards the second roller is applied, and the previous dressings are to be covered with this second bandage, which is to be well covered with the starch also. In this way the limb is surrounded by two rollers and the pieces of starched pasteboard. After some thirty to forty hours these will be fully dried, and the limb be encased in a firm, immovable apparatus. But this firm drying forms one of the objections to the apparatus; for if the dressings be left just as they were applied, the limb will as likely as not assume an improper position, in which it will be retained by the dried apparatus. To obviate this difficulty, small pieces of paper are to be laid over the starched bandage, and over these firm splints are placed, and these are maintained in position by tapes or strips of bandage. After a few days, this provisional dressing can be removed, and the parts below will be found dry and firm. In consequence of the difficulty of drying the starched bandage, investigations have been made to ascertain if a substitute for the starch could be found, and the result has been the discovery of an article of farinaceous character called *dextrine*. It is so named from its power to turn rays of light to the right. It resembles starch, and a solution of any desired thickness can be made by pouring hot water upon it. It possesses the advantage of drying in three or four hours, during which time the parts may be maintained in proper position by a provisional apparatus, or by careful watching. This apparatus, starch or dextrine, appears very simple, and at first seems as though it would admirably accomplish its design, and if we could be certain the limb would retain exactly the condition in which we leave it after the adjustment of the bandages, &c., it would be an admirable con-

trivance; but, unfortunately, as is well known to surgeons, after the application of the retentive means, there is great reason to fear that the limb will swell; and if it be tightly cinctured by an immovable apparatus, which has been adjusted before the swelling appears, the consequence will be constriction of the limb, and the development of inflammation and its sequences; so that it has been demonstrated that, although this apparatus is, under certain circumstances, which I shall presently mention, an admirable contrivance, it is not applicable to fractures soon after their occurrence, because of the great danger of swelling, and the risk of inflammation and its effects. Cases are reported in which mortification followed the application of this "immovable apparatus." One happened under the charge of one of the most distinguished surgeons in this country, a Professor in a Southern college. In this case sphacelus occurred within the folds of this dressing—and all this, too, not from any fault of the doctor, who, as I said before, is one of the best practitioners in this country. Soon after its introduction, this apparatus was very popular, and, because it was fashionable, many persons recommended it highly; but after such accidents as I have mentioned, they reprobated it as much as they had previously praised it. I remember a case in point. Some years ago, we had in this city a very good teacher of surgery, who, to show that he was fully posted in all recent matters, was in the habit of lauding everything just out or fashionable. He went off frequently at "half-cock," forgetting the maxim that "Everything that was new was not true, and all that was true was not new." Well, one year, in his lectures, this gentleman praised the "immovable apparatus," as though it was a specific, or everything that was to be desired in the management of broken bones; and the next year he railed against its employment, as though it was a piece of arrant quackery, without appearing to consider that it might have been employed at the wrong time. Notwith-

standing the accidents that may have occurred with it, the apparatus is most excellent under certain circumstances, if properly applied and at a suitable time; but that is not immediately after the occurrence of the accident, although it was said by its advocates that it will prevent the swelling of the limb. It is not so. I tell you there is danger in its application, if it be resorted to at this time. "Well, then," say you, "a little while ago you remarked that the apparatus was a good one. When ought it to be applied?" I reply, as soon as the inflammatory symptoms consequent upon the accident have passed away. "But," quoth you, "you have stated this may require months." I do not say, wait until all the swelling has gone; but when the inflammatory intumescence has passed off, it can be applied. A case to which I was called a few years ago will illustrate this statement. The patient was doing well, but his friends wished a consultation, although they had all confidence in his physician, who was, and is, one of the best in our city. I told the sick man he was doing well—that so far as I knew, nothing could then be done to expedite the ease—time was requisite. When we left the case I said to the doctor: "I suggest that you soon apply the immovable apparatus to this leg." He said: "I have heard of its use. Suppose we go back, and you apply it?" "Not now," said I. "I will return in a few days, when I have leisure, and show you how to adjust it. In the mean time, at your next visit, you can remark, 'The swelling appears to be passing away; in a short time I wish to put on a new apparatus, in the use of which, I have no doubt, union will occur more rapidly than under the old treatment.'" The doctor acted upon my suggestion, and in a few days I saw the patient again. The apparatus was applied; and as soon as it was dry, a long sling, reaching from the foot around the neck, was arranged, and he was permitted to hobble about on crutches, although within less than two weeks from the time of accident, and consolidation was effected most fa-



vourably. One of the great objections, as I have said, to this contrivance, is that you hardly know what is going on beneath it, and hence the necessity of hitting the right time for its use. If you suspect anything, the whole dressing should be removed for examination, and not slit open, as is sometimes recommended, and then re-adjusted, because in this way a ridge will be formed that may produce unpleasant effects. So that, although I extol the "immovable apparatus," I most earnestly deprecate its use until after the inflammatory symptoms consequent upon the accident have passed away. It is a most useful arrangement in other cases than fractures. Hereafter I shall mention it in connexion with pseudo-arthritis, dislocations, and other accidents. Whenever there is a necessity to keep a joint at rest, you will find it a most admirable contrivance.

In the course of my remarks I have hinted at the impropriety of frequent dressing, or the too often repeated removal of the bandages. I cannot too forcibly insist upon this point. If you shift the dressings, you certainly produce irritation, you move the limb, and may separate the parts. Establish for yourselves a line along the affected limb, and by a frequent examination of the parts to and from which you make the line, you will be able to know whether the fragments maintain their proper position or not. But the idea of fingering a part, handling it, squeezing it for the purpose of making the patient believe you are acting with a great deal of care to insure coaptation, is most reprehensible. Such a course indicates great ignorance, or what is worse, consummate quackery.

When a doctor meddles continually with a fractured limb, no coaptation can occur, because necessarily with the removal of the apparatus, there must be displacement of fragments to a greater or less extent, so that till the apparatus becomes loose, or until it is too tight in consequence



of the increase of swelling, it should not be removed. I would not fix a date for taking off the dressings, but I should say, let them alone while the patient is comfortable, even if a week elapse. It may be necessary to adjust them before the week is out, because the movements of the patient will loosen them a little; moreover, the bandages will stretch, so that the patient should be cautioned to be extremely careful.

In considering the third indication, I cannot refer to all the symptoms that may occur, but I will call your attention to a few that are likely to happen. And first, to spasms of the limb. After dressing, and you have left the patient a few hours, the first thing he knows the limb is suddenly drawn up, it falls down again; this movement, occasioned by the contraction of surrounding muscles, disarranges the fragments, and this displacement irritates the muscular fibres, so that the tendency to jerking is kept up until the parts are re-arranged, and the system quieted by some anodyne.

Probably very soon, or within twenty-four hours after the adjustment of the fracture, you may be sent for in a great hurry to visit the case again, and you will find your patient in a state of fever. His system is excitable, and he complains that the limb feels tight and painful. You will at once infer that there has been extravasation, and there is a tendency to inflammation if this state be not fully developed, which occasions the general constitutional disturbance. These symptoms can generally be allayed by redressing the part, the application of a cooling lotion, and the administration of diaphoretics and sedatives.

In another case your patient will appear very restless and excitable. He will complain that there are several snakes in the room, or he will say that a black dog, or some other animal, is jumping about and trying to bite him. If you are not aware of his habits, you will be startled at his condition. If you understand your business, as you should

do, you will inquire if he uses alcoholic or malt liquors. You may be told he drinks a little. Be sure to ascertain how much he used in a day, and you will likely discover that the "little" will be from twelve to twenty half gills in a day, and he now has delirium tremens, or, as some call it, mania a potu. In these cases you must resort to such general treatment as the circumstances indicate.

Many other abnormal conditions, as inflammatory, irritative or typhoid fever, may show themselves, which you must treat upon general principles.

I have now concluded the observations I thought it necessary to give you upon the subject of Simple Fractures, and we will pass next to the consideration of the much more serious lesion called Compound Fractures.

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#### COMPOUND FRACTURES.

In speaking on the important subject now about to engage our attention, I shall proceed in the following order:

1st. DEFINITION.

2d. CAUSES.—A. External violence.

B. Movements of limb.

C. Ulceration.

3d. DANGERS.—A. Shock. B. Hemorrhage. C. Tetanus. D. Mortification. E. Fever.

4th. TREATMENT.—1st. Indication, to coaptate parts.  
2d. To heal the wound, and effect consolidation. 3d. To remove the limb.

When I lectured on "Fractures" some time ago, I mentioned accidents of a very severe nature, which I informed you were called Compound Fractures. You will remember that I then stated these lesions to be solutions of continuity in the bone, accompanied by disruption of the soft parts,

and that a communication was established in this way from the exterior to the space between the fragments. I spoke, also, of solutions of continuity in the bone, with a breach of the soft parts without this communication. I remarked, too, that one variety of the injury was Compound Fracture; and the other, Fracture with a wound. Bear in mind the distinction, if you please; it is very important to be remembered. A fracture with a wound, although a more severe affair than a simple break of a bone, is by no means so dangerous an occurrence as compound fracture. Of all the accidents to which the attention of the surgeon can be called, there are few of more serious character than the lesions now under consideration.

Compound fractures are occasioned by external violence. I spoke fully of this cause while examining the more simple accidents. You will readily understand that if the force be very severe in its operation, that it may, in addition to breaking the bone, disrupture the soft parts, and that by this breach a cavity or communication is established from the exterior to the space between the fragments. Compound fractures are frequently produced by railroad accidents; the violence which occasions the break is generally sufficiently great to lacerate the soft parts, and produce the comminution before mentioned. But, as I have said, fractures of bones are sometimes occasioned by muscular contraction alone. As a general thing, this cause and external violence act in combination. Still, under certain circumstances, muscular contraction will, of itself, disrupt the bone; and in some cases the contraction may be so great as to force one fragment through the soft parts, and thus occasion compound fractures. But, in addition to these causes, this lesion may follow a simple solution of continuity. Sometimes a bone is broken, and before the patient falls a great deal of weight presses upon the fractured part, and pushes it through the contiguous

soft parts. In this way, although external violence did not occasion the disruption in the soft parts, the bones themselves, or some of the fragments, or a piece is pushed through the coverings, and a compound accident is induced. Or subsequently to the falling of the patient, or after he has been placed in the horizontal position, the movements of the limb may convert the injury into a compound one. Possibly an accident occurs, and the patient is not seen for several hours; and during this time the movements of the limb, either because of his inability to maintain it in a quiet position, or spasmodic contraction of the adjoining muscles, may push a piece or pieces through the soft parts, and occasion a solution of continuity of this character.

Compound fracture may be occasioned by ulcers. You can readily comprehend, that after the parts have been adjusted, unless they have been accurately adapted, pressure may be made so as to excite inflammation in the soft tissues; and as a result of this action ulceration follows, and thus a hole is formed, by which a communication between the interior and the outside is established. In all these ways compound fracture may occur; generally, the disruption of the soft parts is a concomitant of the break in the bone, the external violence producing fracture being usually sufficient to break up and lacerate the soft parts, and establish the communication I have explained; or the weight of the limb, or the parts above, forces the fragments through the coverings, and in this way the accident is complicated. In whatever way occasioned—whether by external violence, the passage of a railroad car over the limb, the contact of machinery, or by the violence of a gunshot wound, it is a most hazardous condition for the patient.

It is dangerous, first, because the great severity of the accident usually produces such an effect upon the system

as to occasion prostration of the vital powers, or *shock*, which often destroys the life of the patient, without the supervention of reaction; or, if this occur, it is characterized by remarkable symptoms, such as irregular nervous action, or unnatural determinations of blood, and the consequent development of diseases to which the patient was not previously subject. In some of these ways, either from "shock, irregular nervous action, or unnatural determinations of blood," or by the establishment of some inflammatory excitement, the life of the individual may be destroyed. But if he pass these dangers, he has others to encounter. It may happen that the broken bone, in its course to the exterior, will pass through a vessel, tearing it open, and as soon as reaction is established, the patient may speedily become dangerously ill, and lose his life from *hemorrhage*; or the violence which produced the fracture may be of such a nature as to tear an artery, or lacerate a nerve, and thus he may die from the loss of blood, or nervous irritation. In this connexion, I advise you to study carefully the work of Mr. B. Traverse on "Constitutional Irritation." The next danger, is *Tetanus*. On another occasion I shall call your attention fully to this terrible form of nervous derangement. But you can readily comprehend that in such accidents, where the hard parts are broken, and the soft parts extensively torn up, how liable the patient is to have his life destroyed by this cause.

But there are other dangers than *Shock*, *Hemorrhage*, and *Tetanus*. A man has received a gunshot wound in his leg, which occasions a compound fracture. The fragments are coaptated; they are well dressed; and for the first day or two there is every reason to hope that, under proper care, recovery will result. But at the end of this time the parts around the injury become hot, swollen, and painful; the colour is deepened, and the secretions are altered or suspended; inflammation is established. This action is

apt, under such circumstances, to run beyond the point of resolution, and the other termination of inflammation is soon manifested, that is to say, *mortification* is developed. And when this happens, it is very likely to be very acute, and run its course quickly, to extend itself rapidly; and unless the surgeon is well informed, and prompt in his management of the case, the patient will probably soon succumb.

In many cases the dangers I have mentioned may not show themselves, but the patient has before him the risk of *Fever*. In one case this will take on the form of Synocha, or Inflammatory Fever; in another it will be Typhoid; in a third it may be of irritative character. Either form of disease will greatly complicate the case, and increase the danger of the case. Should the patient avoid the difficulties I have mentioned, he has still probably to encounter the risk of Suppuration, which may develop *Hectic Fever*. From this detail you will see, gentlemen, that compound fractures are vastly more dangerous than simple solutions of continuity of a bone.

TREATMENT.—In determining upon a course of management, there are several circumstances to be considered. The locality of the injury, the age of the patient, and the severity of the accident. If the lesion be in a limb to which dressings can be well applied, and the disruption of soft parts be not very great, and the age of the patient be satisfactory, that is to say, if the patient be under the middle age, and over the period of infancy or childhood, and be of proper habits and good constitution, you have every reason to prognosticate favourably. But if the accident be a consequence of gunshot wound, and there is much laceration of surrounding soft parts, disruption of vessels, comminution of bone, or if the lesion penetrate the thigh bone, or pass through the scapula and involve the shoulder joint, you will have every cause to fear an unfavourable result. The course of treatment, then, may be



divided into the method which it is necessary to pursue in mild, or not very severe, cases, and that which should be adopted in accidents of a more grave character.

First, of the mild cases. If you are called to see a patient with a compound fracture, in the leg, for instance, in which the bones are broken obliquely, and you find there is no comminution, and not much injury of the soft parts, the proper course is to treat the case as though it were a simple fracture with a wound. Approximate the parts, put them into proper relations, bring the lips of the wound together, and maintain them in apposition by any form of dressing which you may judge applicable in the management of the wound to heal it by the first intention.

If you find bits of broken bone, pieces of detached bone, or bits of bone which are merely held together by pieces of periosteum, or small masses of cellular substance, your better course is to remove them. They will become detached in the course of the treatment, and act as causes of irritation, and hence you had better take them at once. If the end of the bone stick out, you are to resort to extension and counter-extension, and manipulation; and, if possible, bring it into its natural position.

By proper management you may succeed, notwithstanding the end does project one or two inches through the soft parts. Still, though in some cases you may be successful, it is right to tell you that you will often fail. The orifice may be so constricted that you cannot push the pieces back. You then take a scalpel and increase the opening, enlarge it so as to loosen the constricting part. Suppose you cannot accomplish your object in this way, what method will you adopt? Will you bring the limb as near as possible to the natural position, and allow the bone to remain out? No. Failing by extension and counter-extension to effect reduction, and being unable to push it back after the incision, you should take a pair of bone-



nippers, or saw, and remove the projecting part. But it is much easier, and much better, if you can retain the piece of bone to make an opening, and restore the part to its natural position. It is true, you run the risk of necrosis. If the bone has been deprived of periosteum or the investments, there is every reason to expect that it will die. Failing to effect reduction, there is no misunderstanding about the matter; the piece should be cut off; then coaptate the parts. In all cases when called to see a compound fracture, you should say to the patient and his friends, it is a bad accident, it is a dangerous occurrence; and before resorting to any such expedient as either of the methods I have mentioned, you should fully explain to the patient that such a course, or either of the courses, is necessary; and, moreover, you must take care to have some disinterested person by you, and if you have reason to expect that there will be subsequent difficulty, the proper course is to write out your notions. Keep a copy of what you write, and hand one to the patient. It is a most surprising thing, but nevertheless true, that notwithstanding the difficulty physicians encounter in such cases, they hardly ever get paid, and very often are subjected to the annoyance of a suit for mal-practice, if the case has resulted contrary to the wishes of the patient or his friends, and if the precautions I have spoken of have been neglected.

You will encounter cases of compound fracture more severe than those to which I have just referred; lesions in which there is not only disruption of soft tissues, but a destruction of parts,—arteries are torn across,—nerves are lacerated,—veins are opened,—muscles are torn away, joints are entered, and bones are severely comminuted. Here you have a more severe kind of injury—a severe compound fracture. In a case like this, after having relieved the patient of the shock, which becomes necessary at once, or soon after the occurrence of the accident, it becomes a matter of grave inquiry whether an effort should be made

to save the limb, or if it should be condemned to the operation of amputation. There are circumstances which favor both views. If the age of the patient be medium—if the constitution be good—if the habits have been regular, efforts may be made to save the limb, which, under other circumstances, would be perfectly unjustifiable. I have seen limbs that suffered from compound fracture, in which the arteries were torn across—there had been considerable hemorrhage—pieces of muscles were removed—bones comminuted, and recovery follow. I have referred incidentally to a case of compound fracture from gunshot wound, that I saw managed, many years ago, in the Pennsylvania Hospital, where the wad passed through the calf of the leg, breaking the tibia, fibula,—lacerating nerves and veins, and opening the peroneal and posterior tibial arteries; and still recovery resulted. The patient was a boy ten or eleven years of age, of good constitution. He was subjected to great risk, as irritative fever was developed, from the long and continued drain on the system, and the extensive suppuration which ensued; and parts were carried away by the injury and subsequent sloughing, large quantities of pus were discharged. The system of the boy was prostrated, but by good management he was sustained, and finally he had a fair limb—a much better limb than the stump of the amputated leg would have been. Here is a remarkable case, one which would have justified amputation. I would say, if called upon to decide, that a limb having received such an accident, should be amputated. Still, notwithstanding, as a general rule I should so decide, it is my duty to tell you that there are circumstances under which efforts should be made to save the limb, which are not justifiable under other conditions. A surgeon is not warranted in risking the life of a patient, without giving the chance of amputation. You may be called to see a person who has the horror of the knife, and violently objects, and he is furnished with all the means and conveniences of life—who

can command all the care that is necessary: under such circumstances you may try to save the limb; whereas such a course would not be safe in poorer persons—on a battlefield, or in a naval fight. Suppose you attempt to save a limb which has been badly injured, how are you to treat it? The parts have been torn away—large vacuities remain on the limb. What will you do under such circumstances? The best thing you can do is to adopt the course of treatment recommended by Dr. John Rhea Barton, one of the best surgeons our country has ever produced. The method recommended by him consists in filling a common fracture box with bran, and placing the limb in the box, and surrounding it with the bran. Though a strange application, it is one that affords equable support to the limb, and moreover receives the discharge. It is a soft and easy pillow, and then without disturbing the limb, any noisome matter may be removed by merely letting down the sides of the box, and with a syringe and warm water, washing away the bran that has received the discharge. Clean bran may be dusted in, and the limb will have remained undisturbed. These are the advantages of the bran dressing. It makes a good poultice, and still affords a sufficiently firm support for the affected limb. I say nothing of the apparatus of warm water dressing, or of the various appliances that are recommended. It is not necessary to refer to them. Those which are proper, will be mentioned particularly when I come to speak of treating the various fractures.

Suppose, however, you are unable to save the limb. You find it so badly injured—so torn and broken, that you think that to allow it to remain will jeopard the life of the patient, you fear he will not be able to sustain the recuperative process—that there is not sufficient *vis medicatrix naturæ* to support him, will you tell the patient, in a month you must have your limb off, or as soon as reaction is established it must come away? If you speak properly in a vast majority of instances, you will say the last. It had

better come off immediately after reaction is established; although success sometimes follows the other operation. It has been proved by statistics that the primary operation is preferable. Hereafter, when I come to lecture on the subject of amputation, I shall tell you that the amputation of a limb is by no means a trifling operation—that it occasions a shock, from which the patient may never recover. I mention this circumstance now, if I have not previously referred to it, to teach you that it is necessary to inform your patients of the danger. Remember, under no circumstances, do any operation which will jeopard the life of an individual, without having previously informed him of the danger to which he will be subjected; and as the risk is to him, give him the opportunity to decide.

Here end the very excellent remarks of Prof. M'Clinck on fractures; and, to complete the subject, we introduce the observations of Dr. Druitt on the non-union of fractures, as well as those of the treatment of special fractures.

## PARTICULAR FRACTURES.

*Fractures of the ossa nasi*, and of the malar and superior maxillary bones, may be produced by violent blows or falls on the face, or by gunshot injuries.

*Treatment.*—Any displacement of the fractured portions should be rectified as soon as possible, by passing a strong probe or female catheter up the nostril, and by manipulation with the fingers. A depressed fragment may often be conveniently raised by passing one blade of a dressing forceps up the nostril, and applying the other externally, so as to grasp the fragment between them. Some practitioners are in the habit of introducing tubes or plugs of oiled lint, in order to keep the fragments in their places; but this appears to be unnecessary, and is very irritating. A plug of lint may, however, be requisite to check profuse

hemorrhage. If the fracture is compound, any *loose* splinters should be carefully removed. The great swelling, ecchymosis, bleeding from the nose, and headache, with which this injury is followed, will require to be combated by bleeding or leeches, purgatives and cold lotions, and spoon diet; and if collections of matter form, they should be opened without delay. If there are symptoms of pressure on the brain, and the vomer seems depressed, it should be carefully drawn forward, if possible.

*Fractures of the lower jaw* may be caused by violent blows. Its most usual situation, says Mr. Vincent, is at the situation of one of the eye teeth. Sometimes in children (though rarely) it occurs at the symphysis, and still more rarely at the angle, or in the ascending ramus.

*Symptoms.*—It is known by pain, swelling, and inability to move the jaw, and irregularity of the teeth, because the anterior fragment is generally drawn downwards by the muscles arising from the hyoid bone, whilst the posterior fragment is fixed by the temporal. On moving the chin whilst the hand is placed on the posterior fragment, crepitus will be felt; and the gums are lacerated and bleeding. The diagnosis of fracture of the *ascending ramus* will often be obscured by the great swelling, great pain, and difficulty of motion, and obscure crepitus are the chief signs.

*Treatment.*—A piece of paste-board or gutta serena, softened in boiling water, should be accurately fitted to the jaw, and then a four-tailed bandage should be applied. This is made by taking a yard and a half of wide roller, and tearing each end longitudinally, so as to leave about eight inches in the middle, which should have a short slit in it. The chin is to be put into this slit, and then two of the tails are to be tied over the crown of the head, so as to fix the lower jaw against the upper, and the other two are to be fastened behind the head. It is useful to place a thin wedge-shaped piece of cork between the molar teeth on each side, especially if any of the teeth at the fractured

part are deficient, in order to insure more perfect adaptation, and to keep the incisor teeth a little apart. Some-



FIG. 59.

times the tooth falls down between the broken parts; a circumstance which should be looked to, if there is much difficulty in fitting them together. (Fig. 59.)

The patient, for the first fortnight, must be fed entirely with broth, gruel, bread, pap, &c. The cure generally occupies five or six weeks.

*Fracture of the clavicle* is most frequently situated at the middle of the bone, and is generally caused by falls on the arm or shoulder; sometimes, however, by direct violence, when it is generally situated near the acromial extremity. When fracture of the acromial end of this bone is situated between the coraco-acromial ligaments; but when the fracture is external to these ligaments, the acromial extremity of the bone is apt to turn round at right angles to the sternal portion.

*Symptoms.*—The patient complains of inability to lift the affected arm and support it at the elbow; the shoulder sinks downwards, forwards, and inwards; the distance from the acromion to the sternum is less than it is on the



sound side; and the end of the *sternal* fragment of the bone projects as though it were displaced, although it is not so in reality, but merely appears to be so, in consequence of the sinking of the shoulder and of the outward fragment.

*Treatment.*—The shoulder must be raised, and must be supported in a direction *upwards, backwards, and outwards*. The broken parts may be *reduced*, either by putting the knee between the scapulæ and drawing the shoulder backward; or, by placing the elbow close to the trunk and a little forwards, and then pushing it upwards. To support the parts during the cure, the most common apparatus is

The *stellate, or figure-of-8 bandage*, (Fig. 60.) In the first place, a thick wedge-shaped pad must be put into the axilla,



FIG. 60.

the large end uppermost; then a long roller must be passed over each shoulder alternately, and be made to cross on the



back. In the next place, the arm must be confined to the side by two or three turns of the roller; and lastly, the elbow should be well raised by a sling, which is also to support the fore arm. It will be noticed that the shoulder is kept *up* by the sling, or by the pad, and *back* by the bandage. The same rules may be gained by means of three handkerchiefs; one to act as the pad in the axilla, another for a sling, and the third to keep the arm close to the body—the whole being stitched together.

Another simple contrivance, invented by Mr. James Duncan for the same purpose, is a strip of *jean* about a yard long, of the shape represented in the next figure. The elbow is fixed in the hole; the smaller straps pass back and front of the chest, and are buckled over the opposite shoulder; and the broad part is buckled round the chest, confining the arm to the side. The whole being in one piece cannot slip, and is very available for children. In ordinary cases the patient may be allowed to walk about in a week or ten days, and the cure will be completed in a month or five weeks. The patient should be informed that some little irregularity is apt to remain. If, however, there is any difficulty in maintaining a proper disposition, the patient must be confined to bed, and some additional apparatus be employed. The simplest is a straight splint across the shoulders, to which they are to be bound by the figure of 8 bandage, or a splint shaped like a T, of which the horizontal part is bound to the shoulders; and the vertical part passed down the back, and is confined by a belt round the abdomen.

Besides these there is the *clavicle bandage*, which consists of two loops for the shoulders, attached to two pads resting on the scapulæ, which are drawn together by straps and buckles.

## FRACTURES OF THE SCAPULA.

The *body* of this bone may be broken across by great *direct* violence. One case is known also in which it was fractured by muscular action. The symptoms are great pain in moving the shoulder and *crepitus*, which may be detected by placing one hand on the acromion or spinous process, and moving the shoulder of the inferior angle with the other.

*Treatment.*—A roller must be passed round the trunk, and a few turns be made round the humerus, so as to fix the arm to the side, and prevent all motion. Opium and quietude, perhaps purging and low diet, will be required to avert inflammation of the chest.

Fracture of the neck of the scapula, by which is meant an oblique fracture, detaching the coracoid process and glenoid cavity from the rest of the bone, is a rare accident, insomuch that some surgeons have doubted its existence.

The *symptoms* described by Sir. Astley Cooper, are the following:—The shoulder appears sunk, and the arm lengthened; the acromion is usually prominent, and the deltoid dragged down and flattened; the head of the humerus can be felt in the axilla; and on placing one hand or one ear on the acromion, and moving the shoulder, crepitus may be detected. Crepitus may also be felt on pressing the coracoid process, which is situated deep below the clavicle, between the margins of the pectoral and deltoid muscles. The accidents with which this fracture is most likely to be confounded, are fracture of the neck of the humerus, and dislocation of the shoulder joint; the symptoms of which should be carefully studied and compared. The existence of crepitus, and the fact that the surgeon can move the shoulder freely (although with great pain,) are the chief points of diagnosis between this accident and dislocation.

*Treatment.*—The shoulder must be supported by the same sling, bandage, and pad that are used for fractures of the clavicle; but a short sling from the axilla of the injured

side to the opposite shoulder, should be used in addition to the long sling from the elbow to the shoulder. Union may occur in seven weeks. Opium, rest in bed, and warm fomentations; perhaps leeches and purgatives will be necessary for the contusion with which this fracture is accompanied.

*Fracture of the acromion* is known by a flattening of the shoulder, because the fractured portion is drawn down by the deltoid; and by an evident inequality felt in tracing the spine of the scapula. It may be distinguished from any dislocation, by noticing that the humerus may be freely moved in any direction, and that, on slightly raising the shoulder, the fragment is restored to its place. This is also a rare accident, and Mr. Fergusson believes that, in some of the supposed cases of ligamentous union, the detached portion was never united by ossification to the rest of the bone from birth.

*Treatment.*—The same bandages, &c., are to be applied as for fracture of the clavicle; but great care must be taken to raise the elbow thoroughly, so that the head of the humerus may be lifted up against the acromion, and keep it in its place. Moreover, no pad must be placed in the axilla; otherwise the broken part will be pushed outwards too much. Union is almost always ligamentous, owing to the difficulty of keeping the parts in strict apposition.

*Fracture of the coracoid process* is a rare accident, caused by sharp blows on the front of the shoulder.

*Symptoms.*—The patient is unable to execute the motions performed by the biceps and coraco-brachialis; that is, to bring the arm upwards and forwards; and motion and crepitus of the detached process may be felt by pressing with the finger between the pectoralis major and deltoid, whilst the patient coughs or moves his shoulder.

*Treatment.*—The humerus must be brought forwards and inwards so as to relax the biceps and coraco-brachialis, and must be confined to the trunk.

*Fractures of the humerus.*—*Fracture of the shaft* will be known at a glance by the limb being bent, shortened, and helpless, and by the crepitus felt when it is handled. The Upper Extremity of the Humerus may be fractured, 1, through the anatomical neck; 2, through the line of junction of the epiphysis; 3, through the surgical neck; 4, the greater tuberosity may be broken off; 5, the head may be dislocated from the glenoid cavity, and the cervix be fractured likewise.

*Fracture through the anatomical neck*, that is to say, within the capsular ligament, is a rare accident, difficult of diagnosis; there being scarcely any displacement. "The impairment of the motions of the joint and crepitus," says Dr. Smith, "are almost the only symptoms on which we can depend." There is one variety of this fracture in which the detached head of the bone is driven forcibly into and impacted in the reticular tissue of the head of the shaft, between the tubercles, one or other of which is usually broken off. "In this accident," says Dr. Smith, "the arm is slightly shortened, the acromion process projects more than natural, and the shoulder has lost, to a certain extent, its rounded form; the upper extremity of the shaft of the humerus is approximated to the acromion, and the entire of the globular head of the bone cannot be felt. In consequence of the fracture of the tuberosity, crepitus can be readily detected, when the shoulder is grasped with moderate firmness, and the arm rotated. The absence of a rounded tumour in the axilla, and the impossibility of feeling the glenoid cavity, are sufficient to enable us to distinguish this fracture from luxation."

2. *Fracture at the line of junction of the epiphysis*, called by Sir A. Cooper, "fracture through the tubercles, or at the anatomical neck," is a not unfrequent accident in early life, and is usually caused by great and direct violence.

*Symptoms.*—The head of the bone can be felt in the glenoid cavity, (by which sign this accident is distinguished

from dislocation;) it remains motionless when the elbow is rotated; there is a striking and abrupt projection situated beneath the coracoid process, and caused by the upper extremity of the shaft of the bone, drawn inwards by the muscles which constitute the fold of the axilla. It may be felt rounded, smooth, and slightly convex, not with the sharp irregular margin of ordinary fracture; a slight extension from the elbow draws the broken point of the bone into its natural place, but it immediately projects again when the extension is discontinued; the axis of the arm is directed downwards, outwards, and backwards.

3. *Fracture of the neck* (Fig. 61,) presents nearly the



Fig. 61.

symptoms of the preceding variety: the head of the bone felt in the glenoid cavity; the elbow capable of being moved by the surgeon in all directions, whilst the head of the bone remains motionless; the projection of the upper end of the shaft under the pectoralis muscle; the deformity removed by extension, but returning when the extension is discontinued.

There is one variety of this accident in which the lower fragment is driven up and impacted in the cancellous tissue of the head of the bone, Fig. 61. This complication adds materially to the difficulty of diagnosis, inasmuch as there is some deformity, but yet none of the usual signs of luxation, or of fracture of the neck of the bone. Crepitus may, however,

be produced, if the surgeon very firmly grasp the head of the bone, whilst an assistant rotates the elbow.

4. *Fracture of the greater tuberosity* is usually caused by blows or falls on the shoulder.

*Symptoms.*—Great breadth of the injured joint; slight projection of the acromion and flattening of the deltoid, though the finger cannot be sunk in the glenoid cavity, as in the case of dislocation; the head of the bone drawn inwards by the axillary muscles, whilst the separated tuberosity is drawn outwards by the supra and infra spinatus and teres minor; a deep groove can be felt between the fractured tuberosity and the head of the bone; the latter of which can be felt to move in its socket when the elbow is rotated, and the whole limb can be moved in any direction by the surgeon.

All of the preceding fractures usually unite firmly by bone, even including the fracture of the anatomical neck; for though fracture at this part would seem likely to deprive the head of the bone of all vascular connexion and means of support, yet probably some ligamentous bands, which are sufficient for the purpose, remain untorn: in cases of impaction there is no difficulty. Yet the patient should be informed that some deformity is likely to remain, and some loss of motion, though time and use will go far to restore the latter.

5. In *fracture of the cervix humeri, with dislocation*, the head of the bone can be felt in the axilla, if the arm be raised; and it can be felt not to move when the elbow is rotated. The arm is shortened, and the broken extremity of the shaft can be perceived to move under the acromion. In treating this peculiar form of injury, it is generally found impossible to restore the head of the bone to its place; but the broken summit of the shaft must be brought into the glenoid cavity, and there be retained by the figure-of-8 bandage, and by keeping the humerus close to the side.



*Treatment of Fractured Humerus.*—In all cases it is advisable that the patient be confined to bed for a week or a fortnight, and particularly if the fracture be at the upper extremity of the bone; which latter accident will probably be followed by great pain and swelling, and require leeches, fomentations or cold lotions, purgatives and opiates. The hand and forearm must be well and evenly bandaged, to prevent œdema, and the fracture be set, by steadying the shoulder, whilst the elbow is drawn downwards. Next, a long carefully-padded hollow splint should be placed on the inner side of the limb, bearing well against the axilla and the internal condyle, a second on the outer side from the acromion to the outer condyle, and perhaps a third and fourth, shorter, of pasteboard, before and behind. These must be fastened by bands of firm webbing buckled. Then the arm being placed easily by the side, a firm board band must be passed round the body, so as to confine the elbow to the side, and a sling put on to relieve the weight of the hand and forearm comfortably, but not to thrust up the elbow.

In all cases the surgeon should take care to have the parts well washed with soap and water, before the splints are put on, and whenever they are shifted; otherwise the confined perspiration may cause an intolerable itching, which tempts the patient at night to loosen the bandages. No wise man neglects trifles.

When the upper extremity of the bone is the seat of fracture it is often difficult to apply any apparatus that shall tell upon the fragments, prevent deformity, and keep the arm at rest. The author, in such a case, gets a purchase from the opposite axilla, thus: The middle of a long piece of firm webbing is sown on to the top of the inner splint, which is well padded on both sides. This is crossed over to the other splint, to the edges of which it is fastened by a strong needle and thread. The ends are then brought, one before, the other behind the neck, to the opposite



shoulder, where they cross over a large pad, and finally are attached to another large pad over the axilla. This secures the repose of the entire shoulder, if the elbow be properly secured as well. Sometimes, instead of the outer splint, a firm well-setting shoulder-cap of leather may be put on, being secured by a strap passing under the opposite axilla, and being likewise buckled round the humerus, close under the axilla. In one case, Mr. Tyrrell was obliged to keep the arm at right angles with the side, by means of a splint like the letter L upside down; and the surgeon's ingenuity will often be taxed to devise means suited for particular cases.

At the expiration of about five weeks, the patient may be allowed to swing the arm gently backwards and forwards, and gradually to bring it into use.

*Fracture of the lower extremity of the Humerus* may present many varieties. 1. There may be an *oblique fracture above the condyles*, which usually happens to children.

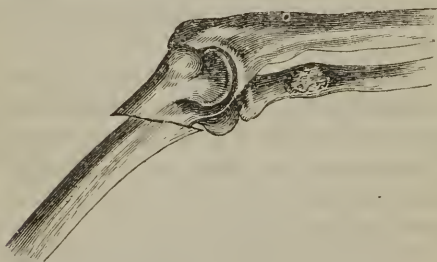


Fig. 62.—Oblique Fracture of the Humerus.

The radius and ulna, with the lower fragments, are drawn upwards and backwards as in dislocation; but the natural appearance of the parts is restored by extension.

2. Either *condyle* may be broken off, and the fracture may or may not extend into the joint. (Fig. 63.) 3. There may be one fracture *between the two condyles*, and another separating them *from the shaft*. All these injuries may be distinguished from dislocation of the elbow

by noticing that the motions of the joint are free, and are attended with crepitus above the elbow, and that the



Fig. 63.

length of the forearm, measured between the extremities of the upper and lower extremities of the radius and ulna, is the same as on the sound side. The patient should be warned that it is very difficult to avoid all deformity and loss of motion.

*Treatment.*—The fore and upper arm should be banded, and a piece of pasteboard, gummed sheeting, or leather softened in water, should be cut to a right angle, like the letter L, so as to fit the elbow when bent, and should be applied on the inner and outer sides, and be retained by another bandage. Besides this, an *angular splint* may be employed. It is composed of two pieces joined at a right angle, one of which is placed behind the upper arm, and the other below the forearm. But if the injury were attended with much violence, the patient must be confined to his bed for some days with the arm on a pillow, and leeches and lotions be employed to reduce the inflammation and swelling.

6. *Fractures of the Forearm.*—*Fracture of the olecranon*



Fig. 64.

(fig. 64,) may be caused by direct force, or by violent action of the triceps muscle.

*Symptoms.*—The patient easily bends his limb, but has great pain and inability in straightening it. A hollow is felt at the back of the joint, because the broken part is drawn from half an inch to two inches up the arm; but sometimes, when the ligaments are not torn through, this displacement may be very trifling, or altogether absent.

*Treatment.*—The limb should be placed in a straight position. Then the forearm having been bandaged, the olecranon, should be drawn down as much as possible, and the roller, continued from the forearm, should be passed round above it, and then back again about the elbow in the figure-of-8 form. Then the whole upper arm should be rolled, in order to prevent contraction of the triceps; and a splint must be placed in front, so as to keep the arm straight. The patient may be allowed to move the part gently in three weeks. Union will be ligamentous, unless the parts are in the closest apposition.

If there is much inflammation, it must be subdued by rest and leeches, before any tight apparatus is put on. M. Malgaigne's hooks have been applied, in order to insure apposition.

Compound fracture of the olecranon is far from an uncommon consequence of violent blows or falls on the elbow; and it is followed by protracted disease of the joint. The part must be bathed and fomented; any loose fragments of bone be extracted; the wound be closed with bloody lint, or collodion, if the skin can be neatly brought together; the elbow must be kept straight and motionless with a splint; leeches and fomentations be used to reduce inflammation; and when the wound is healed, and the joint free from active disease, gentle exercise must be employed to restore it to its proper uses. If the bones are so excessively comminuted as to render it probable that the process of reparation will be tedious and exhausting, excision of the joint should be performed; unless, indeed, the injury is so very severe as to render amputation indispensable.

*Fracture of the Coronoid Process* is very rare. It is caused by the action of the brachialis muscle. Mr. Liston gives a case of it which occurred to a boy of eight years old, and was caused by his hanging with one hand from the top of a high wall.

*Symptoms.*—Difficulty of bending the elbow, and dislocation of the ulna,—the olecranon projecting backwards.

*Treatment.*—The arm must be bandaged and kept at rest in the best position. Union will be ligamentous.

*Fractures of the shafts of the radius and ulna*, together or singly, are known by the ordinary signs of fracture—especially by the crepitus felt on fixing the upper end, and rotating and moving the other. The objects in the treatment are to prevent the fractured ends of either bone from being pressed inwards towards the interosseous space, and to prevent the upper fragment of the radius from being more *supinated* or *everted* than the lower.



Fig. 65.

*Treatment.*—The fracture is easily reduced by extension from the wrist and elbow. Then the elbow being bent, and the forearm placed in a position intermediate between pronation and supination, (that is to say, with the thumb uppermost;) one splint should be applied to the flexor side, from the inner condyle of the humerus to the fingers' ends, and another from the outer condyle of the humerus to the back of the wrist. Both splints should be wide enough, and should be well padded along their middle, so that they may prevent the bones from being pressed together. The hand should be kept in a line with the forearm. The cure is generally complete in a month or six weeks.

*Fracture of the lower extremity of the Radius, (fig. 65,)*

from half an inch to an inch above the wrist, is now commonly called *Collis's fracture*, from the name of the eminent surgeon who first accurately described it. It deserves careful study, from its liability to be mistaken for dislocation. The carpal extremity of the bone is usually broken off transversely, and the fragment is drawn backwards and outwards by the extensors of the thumb and supinator longus. Of course, the carpus and metacarpus go along with it. Thus: if the back of the forearm be looked at, there is seen to be an apparent swelling, formed by the carpus and lower fragment; and, immediately above this, a well-marked sulcus. On the palmar side is a more extensive, but less prominent, swelling, which seems as if caused by the flexor tendons being thrown forward; this swelling extends about one-third up the forearm, and terminates below, at the anterior annular ligaments of the wrist. The extremity of the ulna is seen projecting towards the palm and inner side of the limb. Sometimes it is even dislocated forwards. The chief points of distinction between this injury and dislocation are, the facility with which all deformity is removed by grasping the hand and making extension; the return of deformity on ceasing the extension, and the position of the styloid process of the radius, which moves with the hand if the case be fracture, but not if it be dislocation.

Other varieties of fracture at this part are—

1. Oblique fracture of the posterior margin of the articular surface of the radius, with partial dislocation of the hand backwards. 2. Fracture of the lower end of the radius, with displacement forwards. 3. Fracture of both radius and ulna, which may be recognised by attention to the symptoms presented.

*Treatment.*—The elbow being bent and steadied, the hand should be grasped and powerfully extended, and, at the same time, somewhat adducted. A pad should be placed along the extensor side of the forearm, and the thickest

part of it should correspond to the displaced fragment of the radius, against which it should press, so as to push it forwards, and somewhat into the prone position, as well. Another pad should be placed on the flexor side, but should not reach lower than the margin of the superior fragment. "An anterior and a posterior splint," says Dr. Smith, "are then applied, each of which should be at least an inch broader than the forearm; the posterior should extend from the elbow to the fingers, and should be curved from the wrist downwards to receive the adducted hand. The anterior need not descend below the palm of the hand; a roller is then to be carried around the splints in the usual manner." Three weeks should elapse for a young patient, and four or five for an old one, before the wrist is moved; and the patient should be informed, at first, that some months will elapse before the use of the part is restored.

7. *Fracture of the Hand.*—The *carpus* is rarely fractured without so much other injury as to render amputation necessary. Fracture of the *metacarpal bones*, or of the *phalanges*, will be readily recognised. With respect to compound fractures of these parts, we may observe that no part of the hand should be amputated unless positively necessary, and even one finger should be saved if it can be done.

*Treatment.*—For fractures of the *carpus*, middle, *metacarpal bones*, and first *phalanges*, it is a good plan to make the patient grasp a ball of tow or some other soft substance, and bind his hand over it. For fracture of the lateral *metacarpal bones*, it is better to support the hand on a flat wooden splint, cut into the shape of the thumb and fingers. If one finger only be fractured, it may be confined by a thin lath or pasteboard splint. It must be recollected that the palmar surfaces of the *metacarpal* and *digital bones* are concave. They must, therefore, be slightly padded before they are bound to any flat surface, or they will unite crookedly.



8. *Fracture of the Ribs* is generally situated in their anterior half, and is commonly caused by *direct* violence, such as blows, the bone giving way at the point struck. Sometimes, however, it is caused by *indirect violence*, as, for instance, when the chest is violently compressed between two points. In 1837, several people were crushed to death in a crowd in the Champ de Mars, in Paris, and many of them were found to have several ribs broken in this manner. Sometimes, in old subjects, one or more ribs are broken by violent coughing.

*Symptoms.*—Fixed lancinating pain, aggravated by inspiration, coughing, or any other motion. By tracing the outline of the bone, or by placing the hand or the stethoscope upon it, crepitus may be felt during the act of coughing or inspiration, and the patient be sensible of it likewise. If the fracture be situated near the spine, or if the patient be very corpulent, it may be difficult to detect it with certainty; but this is of little consequence; for in every case, when a patient complains of pain on inspiration, after a blow on the chest, the treatment is the same.

*Treatment.*—The indications are—1. To *diminish motion* of all the ribs by passing a broad flannel roller, or a towel fastened with tape, round the chest, so tightly that respiration may be performed chiefly by the diaphragm. The bandage should have shoulder-straps to keep it up. The arms should be confined to the side, so as to prevent all motion of the scapula; and this latter, in fat women, is all that can be done. Moreover, there are some patients who find all bandages intolerable, but who do very well by being kept quiet in bed. 2. To *prevent inflammation* of the chest, keep the respiration easy, and relieve pain or cough by rest in bed, by purgatives and opiates.

*Emphysema*—a swelling caused by the presence of air in the cellular tissue—is an occasional complication of this fracture. It is produced in the following way: The extre-



mities of the fractured rib perforate both *pleuræ* and wound the lung. In the act of inspiration, air escapes from the lung into the cavity of the pleura, and from thence through the wound in the *pleura costalis* into the cellular tissue of the trunk. *Emphysema* forms a soft puffy tumour, that crepitates and disperses on pressure.

*Treatment.*—"The first object," says Mr. Vincent, "is to adapt a firm bandage over the part of the rib broken, by which the effusion of air into the cellular tissue under the integuments is stopped. The air passing from the wounded lung is now confined to the cavity of the pleura, with which it is filled, compressing the lung. By this means the wound which was made whilst the lung was dilated, is more completely closed than would have been done with any contrivance of art. This wound is usually healed on the eighth day. At that period the breathing greatly improves," and the case is soon reduced to one of simple broken rib.

9. *Fracture of the Sternum.*—*Symptoms.*—Crepitus may be felt during inspiration or other movements of the trunk, and displacement (if any) can be detected by examination.

*Treatment.*—The same as for fractured ribs.

10. *Fractures of the Pelvis* can be caused only by most tremendous violence, and are often attended with some fatal complication, such as laceration of the bladder or rectum, or of the great arteries or veins.

*Treatment.*—The only thing to be done is to place the patient at perfect rest, and in as easy a position as possible; to keep a catheter in the bladder; to make incisions if urine is extravasated into the perineum, as it will be, if the urethra is lacerated by fractured portions of the rami of the ischium and pubes, and to treat any symptoms that may arise. If it can be borne, a broad belt may be passed round the pelvis, and another under the nates, which might be attached to a pulley over the bed, so that the patient may raise the pelvis without exerting any of the muscles attached to it.

There are some cases of fracture of the os innominatum passing through the acetabulum, and caused by falls on the hip, which might be mistaken for fracture of the cervix femoris. For instance, in some cases related by Mr. Earle, the foot was everted, and there was loss of prominence of the trochanter; but there was no shortening, and the limb could be turned freely outwards, which motion is highly painful after fracture of the neck of the femur. In a case reported by Dr. George D. Gibb, late of Montreal, now of Guilford street, in which the right side of the pelvis was literally smashed, the leg was everted and shortened an inch and a half; the trochanter is nearer the anterior superior spinous process than on the sound side. On rotating the limb, the right trochanter appeared to move in the segment of a smaller circle than the left, and crepitus was distinctly felt in the joint. The diagnosis will be aided by the crepitus felt on applying the stethoscope to the ilium, and by examination per anum. It very rarely happens that the acetabulum and cervix femoris are both fractured. The patient must be kept on a fracture-bed. One of Mr. Earle's cases was cured in eight weeks. Dr. Gibb's in sixteen.

*Fracture of the os coccygis*, or of the lower extremity of the sacrum, may be caused by violent kicks or falls. The former may occur during parturition to women who have children, after the coccyx is united to the sacrum. The loose portions must be replaced by introducing the finger within the rectum. The patient should keep in bed, and the bowels must be kept relaxed, so that no disturbance may be occasioned by hard stools.

11. *Fractures of the Femur* present many varieties, which must be carefully studied, because, as Pott observes, "they so often lame the patient and disgrace the surgeon." We must, therefore, treat separately—1. Of fracture of the neck of the femur internal to the capsular ligament;

2. Of fracture of that part external to the capsular ligament, (Fig. 66;) 3. Of oblique fracture through the great tro-



Fig. 66.

chanter; 4. Of fracture separating the epiphysis of the trochanter major; 5. Of fracture just below the trochanter; 6. Of the shaft; 7. of the condyles.

(1.) *Fracture of the cervix femoris internal to the capsule* is generally caused by *indirect violence*—that is, by a slight force acting on the lower extremity of the limb, as happens in slipping off the curb-stone. Sometimes, however, it is produced by falls or blows on the hip. It is very rare in persons under fifty; but very common in old people, especially old women, because this part of the femur seems to suffer first, and chiefly, from the atrophy and fatty degeneration which all the bones, more or less, experience in advanced life.

*Symptoms.*—After a blow or fall the patient finds himself unable to stand, and complains of great pain, increased by motion, and principally seated at the upper and inner part of the thigh. The leg is shorter than the other; the foot turned outwards; the heel rests in the interval be-

tween the ankle and tendo-Achillis of the other leg; *crepitus* may be detected if the hand or the stethoscope be placed on the trochanter, whilst the limb is *drawn to its proper length* and rotated. When extension is discontinued, the limb shortens again. The trochanter generally projects less than on the other side, and if the foot be rotated by an assistant, it is felt to move in a segment of a lesser circle than natural. The limb may generally be freely moved by the surgeon, although with great pain, especially if it be abducted; but the patient cannot lift it from the bed. The above symptoms are liable to considerable diversity, arising from accidental variations in the manner in which the fracture occurs. Thus (a) the *amount of shortening*, (which was stated by Sir A. Cooper at from one to two inches) depends on the degree to which the fibrous investment of the neck is lacerated. If that membrane be not much injured, the shortening may be much less than an inch: moreover, it is doubtful, according to Dr. Smith, whether the capsular ligament, if entire, would permit the limb to be drawn upwards for more than an inch. Again, if the fibrous investment of the neck be not torn, or if the fracture be very oblique, so that the upper opposes the accident of the lower fragment, or if the lower be driven into and impacted in the upper fragment, there may be no immediate shortening at all. (b.) The *time at which shortening occurs* may vary. Sometimes it is very slight at first, but becomes very decided in *a few days*, doubtless when the muscles have recovered from the paralyzing effects of the injury. Sometimes, in an obscure case of fracture, the limb retains its natural length for a few days or weeks, and then *suddenly shortens*, whilst the patient is attempting to walk; doubtless because the attempt has caused the laceration of some untorn fibres of the periosteal investment of the cervix, which before held the fractured parts in apposition. In other cases the limb *gradually* shortens to the extent of one or two inches

during the six months succeeding the injury. This is owing to interstitial absorption of the neck of the femur.

(c.) The *position of the limb* is sometimes anomalous; being inverted in a few cases.

(d.) In some cases the neck of the bone is driven into, and impacted firmly within, the cancellous tissue of the head; a circumstance which of course renders it difficult to say whether the injury be one of fracture or of mere contusion. The chief characters of this injury are those summed up by Dr. Smith. "1. Slight shortening of the limb. 2. Slight eversion of the foot. 3. Absence of crepitus. 4. Great difficulty in all cases, and in the majority an impossibility of removing the shortening of the limb by extension; and, lastly, less loss of power than in other forms of fracture of the neck of the femur."

*Prognosis.*—This fracture does not unite by bone, except in the rare instances of which the broken surfaces are held closely together by the untorn periosteum, or by impaction; or in which the fracture is partly internal and partly external to the capsular ligament. In such cases there is no doubt that bony union may occur; but in the majority the fracture either unites by ligament, or, more commonly, does not unite at all; but the stump of the cervix becomes rapidly absorbed, rounded, and covered with a smooth porcellaneous deposit, and plays in a socket formed by the hollowing and absorption of the head. The capsular ligament becomes excessively thick, and so does the obturator externus muscle, so as to support the weight of the body. The reason of this non-union is, probably, the want of apposition and of pressure of the fractured surfaces against each other; to which may be added the age and debility of the patients; the atrophy of the part injured; the imperfect nourishment of the upper fragment, and the general indisposition of bones covered with synovial membrane to throw out callus.

*Diagnosis.*—The surgeon should be aware that a fall on

the hip is apt to produce interstitial absorption and shortening of the neck of the femur, with disappearance of the cartilage, eburnation of the articular surfaces, and irregular deposit of bone around the cervix (the same series of changes which the part undergoes in chronic rheumatic arthritis,) with shortening of the limb, and wasting of the muscle, with most of the conditions, in fact, that follow a fracture. Thus, the patient on recovering from the immediate effects of the injury, finding the limb lame and shortened, may accuse the surgeon of having overlooked a dislocation or fracture. Of course, the surgeon must defend himself by proving the absence of the symptoms of these injuries immediately after the accident, and by reference to authenticated cases in which the same ill consequences have followed bruises without fracture.

*Treatment.*—If the patient is very old and feeble, it is of no use to sacrifice his little remnant of health and strength, and run the risk of producing sloughing of the nates by long confinement to bed, in the hope of procuring union by bone. But he should be kept in bed for a fortnight, till pain and tenderness abate, with one pillow under the whole length of the limb, and another rolled up and placed under the knee. Then he may get up and sit in a high chair, and shortly begin to crawl about with crutches; and in time he will regain a tolerable use of the limb, especially if not very corpulent. The sole of the shoe must be made thick enough to counteract the shortness of the limb. It must be added that this injury often proves fatal during the first three weeks from the shock to the constitution, or from the bruises inflicted on the limb.

(2.) *Fracture external to the capsular ligament* is caused by direct violence, such as falls or blows on the hip, by which the neck of the femur is broken off, and driven into the cancellous structure of the great trochanter; and at the same time one or both trochanters are split through



likewise. If the cervix be firmly impacted, and the trochanters are still adhering by untorn periosteum, the diagnosis of this fracture presents obvious difficulties, for there is no crepitus; the limb is shortened, but yet cannot be brought to its natural length by any justifiable amount of extension, and is not so everted nor so powerless as is usual in fracture, yet if the distance of the trochanter from the anterior superior iliac spine be measured, it will be found less than on the opposite side. If, however, this fracture be so comminuted, that the cervix is not impacted in the shaft, the shortening and eversion are well marked, and crepitus can be produced on extension and rotation.

(3.) *Oblique fracture through the Great Trochanter.* This accident may occur at any period of life, and is attended with the following symptoms: The limb is everted,



Fig. 67.—Impact fracture of the neck of the femur.

but very little shortened, and the shaft of the bone can be felt widely separated from the trochanter. This fracture unites readily by bone; and the treatment required consists of extension of the limb by the long splint, and a circular girth with a pad, to support the upper extremity of the shaft, and keep the broken surface in apposition.

(4.) *Fracture of the Epiphysis of the Trochanter Major.*—The trochanter is sometimes broken off from the femur, at the part where it is united by cartilage as an epiphysis in youth. The diagnosis is generally obscure; but we allude to the accident in order that the surgeon may be



aware of the possibility of such an occurrence. The part will unite by ligament.

(5.) *Fracture of the Femur just below the Trochanters* is liable to be followed by great deformity, because, as Sir A. Cooper said, the upper fragment is tilted forwards by the psoas and iliacus. Yet Mr. Butcher has shown that it is generally the lower fragment which is drawn upwards and outwards.

(6.) *Fracture of the shaft of the Femur* requires no



Fig. 68.

observations as to its causes or symptoms.

*Treatment.*—For all cases of fractured thigh, including those of fracture of the cervix, in which the patient's strength admits of a reasonable effort to procure union, the *long splint* is the best instrument. The common long splint, known as *Liston's*, is a narrow dial board, of a hand's breadth for an adult, but narrower and slighter for a young person. It should be long enough to reach from below the axilla to four or five inches below the foot. At its upper end it has two holes, and at its lower end two deep notches, with a hollow for the outer ankle.

First, the splint should be thoroughly well padded with layers of blanket. Then the limb should be evenly bandaged from the toes upwards, and gently extended to its proper length and shape. Next, one fixed point of extension is made by passing a bandage repeatedly round the instep and ankle, and through the notches at the lower end of the splint. Next, the splint is thoroughly secured to the limb by a bandage carried upwards. Lastly, the

extension which is to be kept up by the hands of assistants during this process is to be maintained by means of a *perineal band*, which is passed round the groin, and through the holes at the top of the splint.

The improved form of the long splint, employed by Mr. Haynes Walton, does not extend below the foot, and has two slits of unequal depth, through which the bandage is passed, so as to get a thorough purchase from the ankle, (not from the heel and dorsum of the foot,) and to keep the splint square with the leg. The ankle should be well padded. For a perineal band, Mr. Walton recommends a fold or two of blanket, or several folds of flannel, served up in oiled silk, and having a stout tape tacked to each end.

In order to prevent the galling of the perineal band, and its supposed tendency to draw the fractured parts asunder, Mr. Fergusson had adopted the plan in some cases of making counter extension from a strong stay of jean, accurately fitted to the upper third of the opposite thigh; from which a band extends back and front to the upper end of the splint. This is very comfortable, and obviates the necessity of the band round the belly, since it draws the splint *towards* the body. Mr. Fergusson has devised a modification of the straight splint, consisting of a long iron bar, of the length of the ordinary straight splint, the upper half of which can be unscrewed and removed so as to make it a short splint, for fracture below the knee. It has a foot-board, which can be adapted to any length or thickness of limb, and to any portion of the knee or ankle-joint.

2. A second plan is that of Post. It consists in laying the patient on the affected side, the thigh at right angles to the trunk, and the knee bent with a many-tailed bandage and four splints, applied between the pelvis and trochanter above, and the knee below. The disadvantages of this plan are, first, that the patient soon turns round on this rack, dragging the upper fragment away from its right place; and, secondly, that the pressure on the great tro-

chanter may cause sloughing. The first evil may be prevented simply by watching the patient, and telling him to turn round on his belly rather than on his back, if he wishes to shift his position. The second may be remedied by placing him on his back, at the end of a fortnight, with his knees bent up, and supported by pillows.

3. A third plan of treatment is by the *Fracture Bed*, of which the best modification is that of Mr. Torry Hester, of Oxford. The patient is placed on his back; the thigh and knee bent up over a double inclined plane, in which position they are kept immovable. But the whole bed is placed on a sort of hinge, so that the patient's trunk can be raised or lowered without causing any motion of the hip joint.

4. The starched bandage may be employed in fracture of the lower third.

If *both thighs* are broken, a fracture-bed may be employed, if the surgeon has one.

(7.) *Fracture of the Condyle into the knee joint* mostly happens to old persons, and not unfrequently proves fatal.

12. *Fracture of the Patella* may be of two kinds, according as it is caused, (1,) by muscular action, or, (2,) by direct violence.

1. *Fracture of the Patella by Muscular Action* generally occurs thus: A person is in danger of falling, perhaps from missing a step in going down stairs, or from missing his footing after a leap. The knee is bent, and the patella drawn up; and then a sudden contraction of the rectus snaps it across. The *symptoms* experienced by the patient are, the feeling as of a blow or sudden snap, and inability to straighten the knee. The surgeon, on examination, finds a chink between the broken parts, into which he can press his finger, and which is increased by bending the knee.

This as we have already said, is one of the fractures in which it is very difficult to produce reunion by bone in consequence of the difficulty of bringing the broken surfaces

into exact apposition. And not only so, but even when the patient's recovery is considered complete, the fragments are apt to be left in a state of very wide separation: the power of the extensors, and, consequently, of straightening the knee, and of keeping it straight, is lessened or almost lost, and the patient is not only lame, but in constant danger of falling, and of again rupturing the connexion between the fragments, or else of breaking the opposite patella.

The exact pathology of this accident has been very minutely studied by Mr. William Adams, who has shown, in the first place, that the fragments may be united by true ligamentous substance, a firm mass of new tissue, generally from half an inch to an inch long, and passing between the broken surfaces.

This is represented in the diagram 64; and if the ligament is short, the cure is a good one.

But, in the second place, Mr. W. Adams has shown that in the cases in which the patient recovers with wide separation of the fragments, (and in some cases this is so much as four or five inches,) there is no ligamentous union at all; but the fragments are merely held together by the subcutaneous fascia in a thickened condition. So that what is commonly called a union by a long ligament, is in reality no union at all. The conditions under which this failure of union occurs, are shown in the diagram. In the first place, wide separation of the fragments renders union very unlikely. But, in addition, is shown the tendency the fragments have to become everted. Then, if the fascia folds over, and adheres to one of the fractured surfaces, as to both, union becomes physically impossible; and the fascia somewhat thickened, is the only, and a very inadequate bond of union.

In the *treatment* there are three indications, *First*, to place the patient in such a *position* that the muscles which tend to draw the fragments asunder may be relaxed. For this

purpose, the patient's trunk should be somewhat raised in a half sitting position, and the injured limb, with a well padded, long, straight splint behind it, should also be somewhat raised, but *not enough to stretch the ham-string muscles.*

*Secondly*, to bring the fractured surfaces into as close apposition as possible. In some cases there is so little separation, that no apparatus is required. In others, it suffices to place a simple pad, or strap, or bandage above the upper, and another beneath the lower fragment, and to draw them together by longitudinal straps passing between. The same end may perhaps be gained by a figure-of-8 bandage. A leather strap may be fastened round the limb, first above the patella, and a tape passing from each side of this may be fastened to a slipper on the foot. Or an attempt may be made with a starched bandage, applied from the foot to the middle of the thigh, and passing *above* but not *upon* the patella.

But in all such apparatus there are two difficulties: that they are liable to cause the fractured surfaces to be tilted up, and that they pull upon the skin, and not the bone, and so may pucker in the skin between the fragments, and so do more harm than good.

M. Malgaigne has devised an instrument to hold the fragments firmly together, consisting of two hooks which are fixed into the tendon at the upper edge of the bone, and two into the lower, and they can be brought and kept in apposition by the screw. They *cannot* penetrate the bone, nor wound the joint. They may be kept in six weeks, to insure bony union. Malgaigne had treated (1853,) about eleven patients, producing bony union and no bad results.

*Thirdly*, inflammation must be sedulously prevented, if possible. Should it come on, it must be removed by leeches, cold lotions, or warm fomentations, and purgatives; and no constricting apparatus should be applied during this condition.

It has been proposed to scrape off the aponeurotic mem-

brane which adheres to the broken surfaces, by subcutaneous section, and then to apply the hooks.

2. *Fracture by direct Violence* is generally comminuted; perhaps longitudinal. There is usually much inflammation and not much separation of fragments; so that position and bandages suffice, after inflammation has been subdued.

3. *Compound Fracture* of the knee joint will require excision or amputation if the skin is very much torn, or the bones comminuted; and amputation if the popliteal vessels are injured likewise. If the vessels are entire, the bone



Fig. 69.

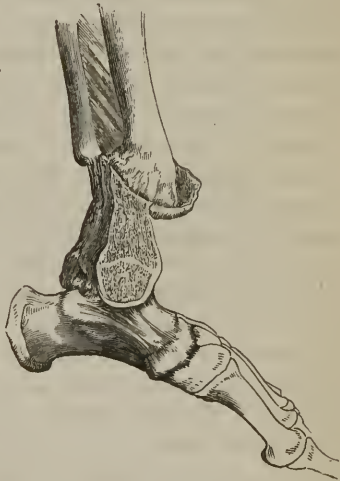


Fig. 70.

not comminuted, nor the skin torn away, an effort may be made to save the limb.

13. *Fractures of the Leg, (69 & 70.)* The ordinary frac-



tures of the leg may be readily distinguished by careful examination. There are several methods of treatment.

(1.) *By the common Splints.*—The injured leg being laid on its outer side, the fracture is reduced by extension from the knee and ankle. Then a many-tailed bandage is applied by some surgeons, after the manner represented in the cut. This bandage is easily made thus:—take a piece of roller, long enough to reach from the knee to the foot, and to overlap about one-third of the leg besides, cut another roller into pieces and lay them across the first at right angles, in such a manner that each shall overlap one-third of the preceding one; these transverse pieces, (which should be half as long again as the circumference of that part of the leg which they are to encircle,) are to be stitched to the longitudinal one, and then the bandage is ready for use. One splint, well padded, should be applied to the outer side of the limb; another to the inner side; and if there is any projection of either fragment, it should be kept in its place by a third slight splint to the skin. The outer splint should have a foot piece, which should be carefully padded in such a manner as to prevent the foot from turning either inwards or outwards, especially the latter. There is a very useful rule, which should be attended to in all cases of injury below the knee; it is, *to keep the great toe in a line with the inner edge of the patella.*

(2.) By the Macintyre's leg splint, or some of the numberless varieties of it in existence, as improved by Mr. Liston and other surgeons. It is straightened out by means of the screw under the knee, as Mr. Fergusson prefers the straight position in almost all cases of fracture of the lower extremity. Before its application, it must be made to correspond to the length of the sound limb, and must be well padded.

(3.) By the very convenient *side-splint* of Mr. Fergusson's, described in a preceding page.—This may be applied either on the inner or outer, according to circumstances.



(4.) By the *junks*.—This very simple but efficient contrivance consists of a piece of old sheeting, with a bundle of reeds rolled together from either end. But it is more easy to comprehend it from seeing it once than from a page of description.

(5.) *By the starched bandage*.—In simple cases of fracture of the leg, the patient may be permitted to leave his bed at the end of a week, with the fracture supported by the starched apparatus. When this has become dry, the patient may get up, and move to his chair or sofa with crutches, but the foot must be suspended from his neck by a sling; and he must be particularly cautioned not to attempt to move it by its own efforts. Lastly, in all cases of fracture of the leg, it is a good plan to suspend, or swing the injured part, by means of Dr. Salter's, or some similar, apparatus. It is not only more comfortable for the patient, but it allows of the use of the bed-pan, with much less risk of disturbing the fracture.

For fracture of the head of the Tibia into the knee-joint the treatment is the same as for fracture of the condyles of the femur. The limb should be placed straight, so that the end of the femur may act as a splint, and keep the broken parts in their places. The whole limb should be raised so as to relax the extensor muscles of the knee, and this should be done in *all cases of fracture of the upper end of the tibia* (for which, consequently, the treatment by splints, with the knee bent, is inapplicable.) Pasteboard splints and starched bandages should be applied to keep the joint motionless; but they should not cover the front of the knee. *Passive motion* should be commenced in about five weeks.

Fracture of the lower end of the Fibula, about three inches above the ankle-joint, is not an uncommon accident, and may be caused by twists of the foot, or by jumping on uneven ground.

Fracture of the internal Malleolus may occur in the

same way; and one or the other of these fractures commonly accompanies dislocation of the ankle.

*Treatment.*—They may be treated either with the bandage and two splints, or with Macintyre's splint, or with Fergusson's side-splint, or with Dupuytren's, which is a diminutive of the long straight splint, represented p. It is to be well padded, and applied to the side opposite the fracture; but it is not so easy to keep the foot in a proper position with this as with the other apparatus.

The surgeon will often find one or more *bags of sand* most convenient auxiliaries in keeping fractures of the leg in proper position. They may be used both to lay the broken limb upon, and also to put on either side to prevent the limb from rolling. This substance is so ponderous and devoid of elasticity that it steadily retains whatever position is given to it.

*Compound fractures* of the leg are to be treated on the principles already laid down for the treatment of compound fractures in general.

14. Fractures of the foot will often be attended with so much other mischief as renders amputation expedient. But an attempt should be made to save part of it; especially the ball of the great toe. Pasteboard splints and other contrivances must be used to preserve the proper position; and if matter forms, there should be no delay in freely dividing the dense fasciæ of the foot, to let it escape.

The tuberosity of the os calcis may be broken by the action of the muscles attached to it, in the same manner as the patella and olecranon, and like these parts will probably unite only by ligament. The treatment must be the same as that of ruptured tendon Achillis."

## DISLOCATIONS.

When any bone is displaced from another without fracture, it is called simple dislocation, but when complicated with laceration of the soft parts, it is called compound and complicated dislocation. The re-adjustment of the parts in either case is called reduction. In speaking of the treatment of dislocations, we shall recommend the new school method, as introduced by Dr. Benoni Sweet, for the publication of which we are much indebted to William A. Foster, M. D., one of our former pupils, and a nephew of Dr. Sweet. This is the first publication of the new method of reducing dislocations as practised by the author.

There are but two theories in the reduction of dislocations of any practical utility. One is that of extension and counter-extension, as practised by the old school, the other the rotary plan of the new school. Great improvement has been made in this branch of surgery in past years, which is due to the science and skill of the new school. The principles and rules of action upon which this new method is established, are, that as bones are not *pulled out of joint*, they should not be *pulled into joint*, but that they are *rolled out of joint*, and, therefore, should be *rolled into joint*. The old theory of extension and counter-extension is arbitrary, and from its injurious results and inefficiency in meeting the demands of all cases it may justly be deemed unphilosophical. New apparatus and machines are invented by those who teach and practise the extension theory to overpower the contractility of the muscles. This method is fraught with indescribable mischief, which the considerate sense of the people has discountenanced wherever the new method has been understood and practised.

The new method of reducing luxation operates by simple means and reverse laws. Its principles require no mechanical force to facilitate reduction; nor do they countenance

venesection and antimonials as valuable prerequisites, but reject them as seriously injurious to the health and well-being of the patient. The new mode of reasoning is that all luxations are caused instantaneously, and effected by a rotary motion; therefore, in order to reduce the luxation it must be done instantaneously, while the muscles are relaxed, [and the patient is unaware of the intention of the operator. By so doing, there is no muscular action or resisting force to overpower, nor does the operator stand in that fearful position which the practitioner of extension occupies in regard to the "irremediable disease" that he fears may arise in the joint from exercise after the reduction. After this instantaneous reduction the muscles are not left in a weakened state, but, having their normal strength and vigour, there is no fear of a second dislocation caused by proper exercise, nor is there any time to be lost for lacerated ligaments to unite, or sprained parts to gain strength. The difference then between the two modes of luxation is that the new method requires no depleting or debilitating agents to facilitate the reduction, nor any overpowering or mechanical forces to accomplish the desired object; nor is the length of time that is required to reduce a dislocated bone by distention at all necessary; for according to the new theory the length of time required to reduce luxation, with one exception, is five seconds. No confinement is necessary after reduction by the new method, for it is accomplished in so short a space of time that the muscles remain in nearly a normal condition, and all that is necessary to aid nature in the repair is proper exercise.

The following brief description of some of the more important forms of luxations, and the reduction of them, will still farther illustrate the new method.

## DISLOCATION OF THE SHOULDER JOINT

May occur either downwards, or forwards, or it may be partially dislocated in other ways. If it is thrown downward, the treatment, according to the new plan, consists in elevating the arm as much as possible, and then placing the knee of the operator or a suitable roller in the axilla, which must be firmly retained in its position, and then by using the arm as a lever, and the knee or roller as a fulcrum, the arm is to be carried downwards and backwards, till the head of the humerus is raised to the edge of the glenoid cavity; then by suddenly bringing the arm downwards, and towards the side of the patient, the head of the bone will easily glide into its proper position.

If the dislocation is *forwards*, the head of the humerus is thrown on the inner side of the coracoid process, and may be felt under the clavicle.

## TREATMENT.

After the patient has been seated in a convenient position, the operator should stand well back and to the side of the patient, and grasp the patient's wrist with his left hand,—if it is the left shoulder that is dislocated, and *vice versa*,—and turn the palm of the hand well up;—at the same time, a firm grasp should be made with the fingers of the opposite hand against the head of the humerus, and the thumb against the acromion process; then by keeping the palm of the hand upwards, carrying the arm upwards and backwards, till the elbow is nearly on a level with the shoulder, and then by suddenly carrying the fore-arm upwards, and directly behind the head of the patient, the reduction will be easily accomplished.

## DISLOCATION OF THE HIP-JOINT.

There are four principal varieties of this dislocation.  
1st. The dislocation upwards, in which the head of the

femur is thrown on the dorsum ilium; 2d, the dislocation backwards on the sciatic notch; 3d, downwards into the foramen ovale; 4th, forwards on the os pubis.

#### TREATMENT.

The same plan that is used to reduce the first variety is to be employed to reduce the second; and the same mode that will reduce the third variety is also to be resorted to in the fourth.

The reduction is effected as follows:—If the dislocation is either of the first two varieties, let the patient be placed in a longitudinal position, and to the side of the bed. The operator should now have an assistant place his hand firmly against the head of the femur, standing well back, or to one side, so as not to obstruct the movements of the operator, who should now seize the patient's ankle with one hand, and with the other grasp the limb just above the knee, and flex the limb as much as possible, carrying the thigh upwards, and across the ilium of the opposite side. The operator should now tell the assistant to press firmly against the head of the bone, while he suddenly rotates the limb outwards and slightly upwards, i. e., rotate the limb in precisely the opposite direction from that in which it was first rotated. By these simple means the bone will easily be replaced.

The last two varieties may be reduced on precisely the same plan, with the exception of the manner of flexing the limb. The limb in these varieties should be flexed upwards and outwards, and while the assistant is pressing against the bone, as before, the limb is to be rotated inwards, and brought down alongside its fellow.

#### DISLOCATION OF THE ANKLE

May occur in various directions, outward, inward, forward and backward. The outward and inward varieties are the most common.

## TREATMENT.

The operator should seize the tarsal portion of the foot of the patient with one hand, and grasp the sole of the foot with the other, having the thumb of the latter hand pressing firmly against the astragalus just beneath the fibula; he will now suddenly rotate, or throw the ankle inwards. The treatment for the inward variety is the same, with the exception that the motions and the position of the hands are to be reversed.

## DISLOCATION OF THE ELBOW JOINT.

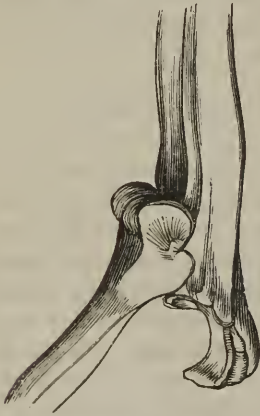


Fig. 71.

Dislocation of the elbow joint is by no means uncommon, and in many cases the diagnosis is very obscure. Especially is this the case when it is connected with violent injury of the soft parts. The most common dislocation is that in which both bones are thrown backwards with or without fracture of the coronoid process. In this injury the olecranon process will make a prominent projection backwards, and the articular ends of the humerus and tendons of the triceps muscle can readily be felt. In cases where the co-



ronoid process is fractured, there will be great mobility about the joint as well as distinct crepitation.

When dislocation of both bones occurs forward, it is always connected with fractures of the olecranon process. The lateral dislocation is usually only partial, as either the radius comes in contact with the internal condyle, or the ulna with the external one. The ulna or radius may be both dislocated, or only one. When the ulna alone is dislocated, it always occurs backwards, and in the majority of cases the coronoid process will be fractured. The radius alone may be dislocated, either forwards, backwards, or outwards, or, as sometimes occurs, the radius and ulna may be dislocated in opposite directions, the radius forwards, and the ulna backwards.

#### TREATMENT.

The manner of reduction of dislocation of the elbow joint varies according to the nature of the dislocation. When the injury is connected with a fracture of either of the processes, the reductions although much easier than where the processes are not fractured, are more difficult to be permanently cured, owing to their strong tendency to dislocate again. When the ulna is dislocated, it may be reduced by bending the arm over the knee. This is done by grasping the forearm with both hands, and firmly pressing the bent knee into the bend of the injured elbow, so as to disengage the ulna from the humerus, and restore the arm to its natural position. In dislocation of the radius the reduction can usually be accomplished by extension at the shoulder. After the reduction is accomplished, a lateral angular splint should be applied, and if it is the ulna which is dislocated, a pad should be passed over its head so as to prevent its re-dislocation, which is very apt to occur. To prevent inflammation from arising, cold packs should be frequently applied, the diet should be mild and cooling, the bowels opened by a compound cathartic pill, and the arm kept perfect,

ly at rest. After the inflammation has subsided, gentle motion should be allowed, and, to prevent stiffness, a liniment should be used, made as follows :

R.—Oil of stillingia,.....	℥ij.
“ lobelia,.....	℥j.
alcohol,.....	℥ij.

Mix, and bathe the arm three or four times a day.

Where the dislocation is connected with fracture, the fractured bone should be adjusted, and the inflammation reduced by the use of hot or cold packs, or fomentations of arnica or lobelia, lye baths, aconite, &c.

#### DISLOCATION OF THE WRIST.

Dislocation of the wrist, although not very common, occurs occasionally. When it does, it may be distinguished from fracture by the absence of crepitation, and the greater amount of deformity.

#### TREATMENT.

The reduction of dislocation of the wrist is very simple and easy, and the support should be made by the use of an antero-posterior splint. Dislocation of the bones of the carpus occasionally occurs, and may be treated upon the general plan given above: also, those of the thumb and fingers. Dislocation of the jaw may be reduced by placing a cork between the teeth, and pressing the jaw upwards and backwards, until it glides into its proper position.

#### DISLOCATION OF THE LOWER JAW.

Dislocation of the lower jaw may occur as the result of too widely opening the mouth in the act of laughing or gaping, (see fig. 72.) The signs of this dislocation are obvious, as the mouth will be seen open without the ability on the part of the patient to close it.

*Treatment.*—The reduction of a dislocation of the jaw may be effected thus :—The surgeon should stand in front

of the patient and place the thumbs, protected by a napkin, upon the molar teeth, and depress the jaw while he raises the chin by means of his fingers. In this way he



Fig. 72.

pushes the angle of the bone downwards and backwards, so as to disentangle the coronoid process from under the zygomatic arch, where it is lodged when the jaw is dislocated. After the reduction, a four-tailed bandage should be applied, as in fracture of the jaw; and if the patient should be of a weak and feeble habit, iron, hydrastin, and other tonics should be administered.

*Dislocation of the Clavicle.* The clavicle may be dislocated either forwards, backwards, or upwards.

*Symptoms.*—The signs which attend dislocated clavicle, are shortening of the shoulder and deformity about the upper part of the sternum. In some cases the displaced bone may crowd upon the vessels of the neck and produce disturbance of the brain; or, it may press against the trachea, and produce difficulty of breathing.

*Treatment.*—The most common form of dislocation of the clavicle is, that where the bone is depressed forwards and downwards. It may be occasioned by blows. The bone

should be crowded back to its positions, and secured by means of a pad and figure of-8-bandage. The other forms of dislocation of the clavicle should be treated in a similar manner.

*Dislocation of the Patella.*—Dislocation of the patella may occur in four ways; latterly, upwards, or downwards. They may be reduced by extending the limb and crowding the bone back to its position, when it should be secured by means of pads or bandages, and the patient remain quiet for a week or ten days.

*Dislocation of the knee-joint.* This accident seldom occurs, although it may result from violent blows or falls from a great distance. When it does occur, it may be backwards, forwards, or on either side

*Treatment.*—Dislocation of the knee joint is frequently accompanied by serious inflammation, and should receive most prompt and cautious treatment. To reduce the dislocation, the patient should be placed upon the back, the thigh placed in a circumflex position, and the leg extended to its natural length, by an assistant, while the surgeon, by proper manipulation, brings the bones into their normal position; after which bandages and splints should be applied so as to maintain perfect rest and position of the parts, for at least, four or five weeks. At the same time, the knee should be kept wet in the diluted tincture of arnica, and such constitutional treatment instituted as will prevent local inflammation.

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## WOUNDS.

Wounds are divided into gunshot, punctured, lacerated, simple, incised, and poisonous wounds.

*Gunshot Wounds.*—Gunshot wounds are a species of contused and lacerated wounds, characterized by their peculiar appearance and the extensive injury inflicted to parts both superficial and deep-seated, in consequence of which

they may prove immediately fatal. Gunshot wounds vary according to the nature of the projectile; the force with which it is driven, and the direction in which it strikes. If a cannon-ball, at full speed, strike a part of the body, it is carried away. If it be a part of one of the extremities, the stump will present a level surface of darkly contused, pulpy tissues. If the ball be partly expended, the portion of the body injured will present more of a lacerated appearance. If it be a spent ball, there will be no removal of portions of the body, but the part struck will be tumefied and present the appearance of ecchymosis. Large portions of shell cause mense laceration of parts, but do not carry away or grind as do round shot. Small projectiles, like a musket-ball, make an opening with irregular circular edges, which are slightly inverted; and if the ball passes out, the wound of exit will be larger, more torn, and its edges slightly everted. The number of wounds made by one ball may be from one to four; as when one ball passes through both limbs, or when the ball splits and makes one hole of entrance and two of exit. Wounds produced by irregular missiles, as small pieces of shell, flattened musket-balls, &c., produce more or less laceration, according to the nature and character of the projectile.

*Symptoms of gunshot wounds.*—A wound produced by a musket shot is attended with pain and swelling according to the extent of the injury. The shock produced by the injury depends upon its extent. When the bones are fractured and the soft parts are extensively lacerated, the shock produced is usually great, and when a ball enters the body and wounds a vital organ, the continued shock is sufficient evidence of its fatal character. When a part of the body is carried away by round shot or shell, the arteries are lacerated, and their middle and inner coats are retracted; the calibre of the vessel is diminished, and tapers to a point, near the line of diversion; the vessel is plugged by a coagulum of blood, and the cellulo-fibrous investing sheath

filled with coagulated blood, which forms an outside support against hemorrhage.

*Treatment.* — The provisional treatment for gunshot wounds consists in arresting the hemorrhage, producing reaction by means of diffusible stimulants, and rendering such other aid as will contribute to the immediate relief of the patient. As soon as this is accomplished and the patient placed in a hospital or a convenient place for an examination, the injury should be carefully and thoroughly examined. If the injury be produced by a ball, the examination should be of such a character, as to enable the surgeon to determine whether the ball is lodged in the body, or passed through it. If there are two openings, one may be that of entrance, and the other of exit; although that does not necessarily follow, as there may be more than one ball in the body; or, it may be a split ball, making two holes of entrance. Portions of clothing and other hard substances carried in by the ball, should be removed; after which the wound should be examined by means of the index finger, and if the ball can be discovered and is accessible, it should be removed by means of the bullet forceps. If the opening be too small for the removal of the ball, and an incision can be made without involving vital parts or injuring large vessels, it should be done so as to enlarge the opening and facilitate the removal of the ball. Fragments of shell and other missiles may be removed in a similar manner. When gunshot wounds are accompanied with great laceration, it is necessary, after removing all the foreign substances that can be detected, to adjust the parts and bring them into their normal position, as near as possible. Previously to doing this, however, the wound should be thoroughly sponged in warm water, and all coagulated blood removed; after which lint or pads of linen should be secured by proper bandaging, and kept moistened either with tepid or warm water. When suppuration has become



fully established, the dressing should be frequently changed; and if the sore assumes an unhealthy appearance, it should be stimulated by applying a dilute tincture of myrrh, lobelia, or arnica. The constitutional treatment consists in supporting the system by means of tonics, nutritious diet, and a strict regulation of the patient's habits.

*Gunshot Wounds of the Head.*—Mr. Guthrie remarks that injuries of the head of apparently equal extent, are more dangerous on the forehead than on the side or middle portion, and still more so than those on the back part—and that a fracture on the vertex is infinitely more important than one at the base of the cranium. The treatment of ordinary gunshot wounds of the scalp consists in cleansing the surface of the wound, removing the hair, applying lint, moistened in cold water, and a proper regulation of the patient's diet. If the wound is connected with fracture of the skull, without depression, any loose fragments of bone may be removed, and the wound dressed as above described. When the wound is connected with fracture and depression in the cerebrum, portions of the bone depressing the brain may be elevated, if practicable, or they may be removed by a trephine.

*Gunshot Wounds of the Face.*—If connected with fracture of the bones, they should be treated by adjusting the fragments as well as possible, and dressing as those of the scalp.

*Gunshot Wounds of the Chest.*—Gunshot wounds of the chest may be of the non-penetrating or penetrating character. Non-penetrating wounds, when caused by large projectiles, may, by the concussion produced, be followed by active congestion or inflammation of vital organs, such as the heart, lungs, liver, &c. Penetrating wounds may inflict injuries upon any of the internal viscera, which is followed by an extensive shock to the system, or hemorrhage and immediate death.

*Treatment.*—The object of the surgeon should be to ar-



rest the hemorrhage, to remove pieces of jagged projections of bone, and to rally the patient by means of mustard-paste, stimulating liniments, and mild stimulants. The wound may be dressed by placing over it folds of linen moistened in water, and secured by a broad bandage.

*Gunshot Wounds of the Neck.*—Gunshot wounds of the neck are by no means as fatal as what might be anticipated from the anatomical structure of the part. If any of the large vessels are ruptured, death will immediately ensue. If not, the wound should be treated as those of the face.

*Gunshot Wounds of the Abdomen.*—Gunshot wounds of the abdomen are divided into *non-penetrating* and *penetrating*.

*Non-Penetrating Wounds.*—If, although the viscera have been contused, the injury does not amount to being mortal, the patient should be subjected to perfect quiet, extreme abstinence, and, only when inflammation arises, to the necessary treatment for its control. If the parietes have been much contused, abscess or sloughing may be expected, and a tendency to visceral protrusion must be afterwards guarded against.

When portions of the pelvic parietes are fractured by heavy projectiles, very protracted abscess generally arises, connected with necrosed bone.

*Penetrating Wounds.*—A penetrating wound of the abdomen, whether viscera be wounded or not, is usually attended with a great amount of "shock." The prognosis will be extremely unfavourable if there is reason to fear the projectile has lodged in the cavity of the peritoneum; and in all cases the danger will be very great from inflammation of this serous investment. The liability to accumulation of blood in the cavity, from some vessel of the abdominal wall being involved in the wound, must not be forgotten.

When, in addition to the cavity being opened, viscera

are penetrated, and death does not directly ensue from rupture of some of the larger arteries, the shock is not only very severe, but the collapse attending it is seldom recovered from up to the time of the fatal termination of the case. This is sometimes the only symptom which will enable the surgeon to diagnose that viscera are perforated. The mind remains clear, but the prostration, the oppression, anxiety and restlessness are intense—and, as peritonitis supervenes, pain, dyspnoea, diffused tenderness, irritability of the stomach, distention, and other signs of this inflammation, are superadded.

In ordinary wounds from musket-shot, scarcely any matter will escape from the opening of the parietes, the margin of which becomes quickly tumefied; but if any escape, it will probably indicate what viscera has been wounded. If the stomach has been penetrated, there will probably be vomiting of blood from the first. If the spleen or liver be wounded, death from hemorrhage is likely to follow quickly. If the small intestines have been perforated, and death follows soon after from peritonitis, the bowels usually remain unmoved, so that no evidence is offered of the nature of the wound from evacuations; but in any case of penetrating wound of the abdomen, when the opportunity is offered, steps should be taken—a matter not unlikely to be omitted under the circumstances of camp hospitals full of patients—to isolate and examine all evacuations which may follow. If the kidneys or bladder are penetrated, the escape of urine into the abdomen is almost a certain cause of fatal result. The latter viscus may, however, be penetrated without the peritoneal cavity being opened, and the wound is then by no means of a fatal character. Musket-balls sometimes lodge in the bladder. In all such cases it is probable that the bladder has been penetrated at some part uncovered by peritoneum, so that the cavity of the abdomen has not been opened—or, if otherwise, the foreign body has found its

way in by ulceration, after adhesion had been established, and thus circumscribed the openings of communication.

When the abdominal parietes have been opened by shell or passage of large shot, protrusion of omentum and intestines will probably be one of the results. This does not always happen. Sometimes a wound caused by a large projectile, which was at first not penetrating, will indirectly become so, from the severe contusion and consequent sloughing, to such an extent as to denude the viscera. Curious instances are recorded in which balls have passed directly through the abdomen without perforating any important viscus, as proved by examination after death.

Gunshot wounds of the colon, especially of the sigmoid flexure, appear to be less fatal, probably from structural causes, as well as circumstances of position, than wounds of the small intestines.

*Wounds of the Diaphragm.*—Musket-balls occasionally pass through the diaphragm; and Mr. Guthrie has remarked that these wounds, in instances where the patients survive, only become closed under rare and particular circumstances. Hence the danger of portions of some of the viscera of the abdomen, as the stomach or colon, passing into the chest, and thus forming diaphragmatic herniæ, and of these eventually, from some cause, becoming strangulated.

*Treatment.*—In the general treatment of penetrating wounds of the abdomen by gunshot, the surgeon can do little more than to sooth and relieve the patient by the administration of opiates, and to treat symptoms of inflammation, when they arise, on the same principles as in all other cases. The usual directions to attempt agglutination of the opposite portions of peritoneum by favourable posture, cannot generally be carried out, the attempts being defeated by the restlessness of the patient. The collapse which attends such injuries may be useful in checking hemorrhage, and the exhibition of stimulants is farther contra-indicated

by the risk of exciting too much reaction, should the wound not prove directly fatal. If the wound be caused by grape-shot, or a piece of shell, and intestine protrudes, it must be returned. If the intestine be wounded, sutures are inapplicable, as in an incised wound, without previously removing the contused edges. When the bladder is penetrated, care must be taken to provide for the removal of the urine—either by an elastic catheter, or, if this cannot be retained, by perineal incision.

*Gunshot Wounds of the Perineum and Genito-Urinary Organs.*—From the position of these parts of the body, uncomplicated gunshot wounds of them are, comparatively, rare. Perineal wounds are not unfrequently caused by shells bursting and projecting fragments upwards, but they are generally mixed with lesions of viscera of the pelvis, or fracture of its structure, or injuries about the upper parts of the thighs or buttocks.

*Gunshot Wounds of the Extremities.*—Gunshot wounds of the extremities divide themselves into flesh wounds and contusions, and those complicated with fracture of one or more bones. Flesh wounds may be simple, and these offer few peculiarities, whatever their site; or they may be accompanied with lesion to nerves or blood-vessels, or both, and these usually increase in gravity in proportion as they approach the trunk.

*Upper Extremity.*—Fractures of the bones of the arm are very much less dangerous than like injuries in the corresponding bones of the lower extremity. Unless extremely injured by a massive projectile, or longitudinal comminution exist to a great extent, especially if also involving a joint, or the state of the patient's health be very unfavourable, attempts should always be made to preserve the upper extremity after a gunshot wound.

In these injuries, where the bone is much splintered, the detached portions, and any fragments which are only

retained by very partial periosteal connexions, should be removed; projecting spicula sawn or cut off; the wound being extended at the most dependent opening, where two exist, or fresh incisions being made for this purpose, if necessary; light water-dressing applied; the limb properly supported; and the case proceeded with as in cases of compound fracture from other causes. The same general rules also apply in preserving as much of the hand as possible in gunshot injuries. If the shoulder or elbow-joint be much injured, but the principal vessels have escaped, the articulating surfaces and broken portions should be excised.

The results of excision practised in the shoulder and elbow-joints, especially the former, after gunshot wounds, have been exceedingly satisfactory. These operations present no peculiarities in mode of performance, or the after treatment, as compared with similar resections in civil practice.

*Lower Extremity.*—Gunshot wounds of the lower extremity vary much more greatly in the gravity of their results, as well as in the treatment to be adopted, according to the part of the limb injured, than happens in those of the upper extremity. As a general rule, ordinary fractures below the knee, from rifle-balls, should never cause primary amputation, while, excepting in certain special cases, in fractures above the knee, from rifle-balls, amputation is held by most military surgeons to be a necessary measure. The special cases are gunshot fractures of the upper third of the femur, especially where the hip-joint is implicated; for in these the danger attending amputation itself is so great that the question is still open, whether the safety of the patient is best consulted by excision of the injured portion of the femur, by simple removal of detached fragments, and trusting to natural efforts for union, or by resorting to amputation. The decision of the surgeon must generally rest upon the extent of injury to the surrounding struc-

tures, the condition of the patient, and other circumstances of each particular case. If the femoral artery and vein have been lacerated, any attempt to preserve the limb will certainly prove fatal.

M. Legouest, in a recent essay in the *Memoirs of the Society of Surgery*, at Paris, maintains that amputation at the hip-joint should be reserved for cases of fracture with injury to the great vessels, and that where the vessels have escaped, resection should invariably be performed. He also inculcates, as a general principle, not to perform immediate *primary* amputation at the hip-joint in any case; but, even in the severest forms of injury, to postpone the operation as long as possible. With regard to gunshot fractures in the middle and lower third of the femur, the experience of the French and English armies in the Crimea has tended to confirm the doctrine of the older military surgeons, that many lives are lost which might be otherwise preserved, by trying to save limbs; and that, of the limbs preserved, many are little better than ineumbrances to their possessors. In the late Italian battles, the practice of trying to save lower extremities, after comminuted fractures in these situations of the thigh, appears to have been abandoned. In fractures of the leg, where neither the knee nor ankle-joints are implicated, the results of conservative attempts have been more favourable. When the fracture is comminuted, and implicates the knee or ankle-joint, opening the capsule, amputation is necessary. The knee-joint was once excised in the Crimea, but the patient died; as was the case in the only other instance where this operation is known to have been performed for gunshot injury in the Sleswick-Holstein campaign. In the treatment of fractures of the leg, where it has been determined to seek union, the same remarks apply as to fractures in the upper extremity. In wounds of the foot it is especially necessary to remove as early as possible all the comminuted fragments of the bones injured, or tedious



abscesses, and much pain and constitutional irritation are likely to ensue." (Stephen Smith, M. D.)

*Incised Wounds.*—Incised wounds are made with clean cutting instruments. The indications of treatment, are to check the bleeding as we have previously described, remove foreign bodies, bring the divided parts into apposition, and maintain them so, and to promote adhesion. This can all be done by the various means and appliances that we have already described.

*Punctured Wounds.*—Punctured wounds are injuries produced by instruments which penetrate the body, and have already been described under the head of gunshot wounds.

*Lacerated Wounds.*—Lacerated wounds are injuries produced by substances which tear and comminute portions of the body. They have also been described under the head of gunshot wounds.

*Poison Wounds.*—Poison wounds are injuries produced by rabid animals, poisonous reptiles, and dissecting instruments, contaminated with virus from recent dead subjects. Wounds of this character should be treated so as to neutralize the poison and prevent its absorption into the system. When the wound is first received, whether it be that of a poisonous reptile, a rabid animal, or a dissecting wound, the blood should all be sucked out, either by the mouth, or some instrument adapted to that purpose, and the wound thoroughly cauterized with caustic of potassæ. If there is danger of the poison being conveyed to the circulation, a tight ligature should be placed along the limb above the site of injury, and remain until after this process. After the wound has been cauterized, a poultice should be applied composed of equal parts of yeast, slippery elm, and pulverized charecoal, and kept wet with the tincture of lobelia. If it be a dissecting wound, and constitutional symptoms should appear, a free lobelia emetic should be given followed by an active purge of podophyllin



and anti-bilious physic, and quinine and iron. If it be from poisonous reptiles, after the lobelia emetic and podophyllin purge, the patient should drink a half teacup full of a strong decoction of plantago cordata, or water plantain, every half hour or hour. Some have advised this decoction to be made of milk, and think it is much better than water. If this should fail to give relief, a half gill of whisky should be given every half hour, until free intoxication is produced. Both of these methods have proved very successful in the treatment of these wounds. If it be a wound produced by a rabid animal, and hydrophobia is the result, it should be treated according to the plan suggested by Prof. Livezey, which is as follows:

### HYDROPHOBIA.

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The painful recital of cases of hydrophobia, ever and anon reported in the newspapers, has induced me recently to examine more closely the views of medical men thereon, and the treatment employed by Old Physic in this terrific and ever-mortal disease. This review has, if possible, exhibited to my mind more serious and destructive errors, both in theory and practice, than any it has been my duty to expose in my preceding articles; errors so gross and astounding, as to be almost a matter of surprise to myself.

Upon the completion of this review, I ask a thinking public, (for doctors will not *think*,) to judge, whether the regular practice in this frightful disease is based upon any sound pathological principle,—or how far it is calculated to relieve the patient, and subdue the fell poison which is coursing in his system, to the *certain* destruction of the unhappy and unfortunate victim; for the “medical faculty” do not recognise a single cure of hydrophobia, after that dreadful disease has declared itself by its characteristic symptoms.

Reports of cures have, however, time and again, been made by Thomson and his disciples,—but as they are not from a “legitimate source,” they are deemed to be not sufficiently well authenticated, to secure the credence of the “profession.”

“Post-mortem examinations show an absence of all definite or constant traces of organic change,” and give no clue to a rational treatment of the disease. Indeed, with the *new* light which Dr. Dickson has cast upon the world of medical science, it is perfect folly longer to seek a knowledge of the treatment of disease in the dissecting room, or by the oft-repeated farce of post-mortem inspections.

True, there is “frequent inflammation of the inner surface of the mucous membrane of the stomach” observed, which is sometimes *softened*; and all authors speak of the fauces, œsophagus, and bronchial tubes being filled with a tough, stringy mucus,—and yet the general fact above mentioned, with the “nature of the symptoms, sufficiently mark the disease as belonging, secondarily, to the nervous system.” From whence the “excessive nervous irritability and apprehension”—the “spasmodic contraction of the muscles of the fauces”—the general “paroxysms or convulsions”—if a *something* did not *primarily* exert an unfavourable influence upon that nervous system?

With a near approximation to truth, may we not assert that these symptoms are produced by the impression of the rabid virus, secreted from the various follicles and glands, and poured out upon the mucous membrane of the alimentary canal, and thence by the reflex action of the nervous system, are the spasms produced,—acting as centres or sources of irritation, as do teething in infants, and indigestible substances in the stomachs of children, both of which are capable of exciting spasmodic action and convulsions in their uninjured organisms?

That the virus is thus secreted, is indisputable,—or whence the power of the rabid animal to inoculate his fellow by a mere abrasion of the cuticle and a suffusion of the part with a little saliva, or mucus? Whence, also, the “signs of digestive disorder”—the “difficulty in the deglutition of liquids”—the coming on of “singular nervous paroxysms”—the “sensation of stricture or oppression felt about the throat and chest,”—and the “painfully embarrassed breathing?” Whence, also, the “copious secretion of a viscid mucus in the fauces, which the patient spits out with a sort of frantic vehemence and rapidity,” or pulls out the “viscid secretion” with his fingers, which are “characteristic features of the disease,” as well as “one of the most striking phenomena of the case?”—*Prof. Wood.*

Let us now examine, for a moment, the effect upon the system of a small portion of variolous or small-pox virus, introduced by inoculation, and mark the analogy existing between the action of the rabid virus of the small-pox,—milder in the latter case, it is true, by reason of the less degree of virulency of the poison,—but yet amply strong enough to manifest the striking resemblance.

In due time after inoculation for small-pox, the stomach becomes disordered, the tongue coated, with general pain and distress. Mucus also collects in the fauces and bronchial tubes, giving occasion, not unfrequently, to oppressed breathing or constriction of the chest, and in children to convulsions also. But in this case, the system, in a great degree, frees itself by the development of a copious crop of pustules; whilst the physician rationally gives emetics where indicated, or mild purges to keep the stomach free from an accumulation of foul secretions, whereby the disease is soon conducted to a favourable termination.

The whole system, then, the external surface, and the mucous membrane, which is a mere prolongation of the cuticle, the solids, and the fluids of the body, are poisoned

by a minute speck of variolous matter inserted beneath the skin;—or whence the power to infect others (not protected) by the exhalations from the body, from which arises a peculiar and disagreeable odour?

In the commencement of the manifestation of hydrophobic symptoms, "acute pain, or shocks of pain, are now and then felt in the epigastrium," where the poisonous virus is most largely effused. The "tongue is generally furred; often a burning in the throat, with thirst which cannot be allayed;" and, finally the "skin is covered with a viscid and offensive sweat;"—proving, also, that the whole system, as in the case of small-pox, is under the influence of the virus.

In the treatment of small-pox, the physician assists the recuperative powers to throw off the poison, by the removal of the morbid secretions as they arise; but in the treatment of hydrophobia, where there is tenfold greater need of such natural assistance, he either debilitates the system by resorting to blood-letting, or fastens these poisonous effusions within and upon him, by the continued administration of opium, morphia, chloroform, and other similar agencies.

More definitely, then, what are the indications for a thorough, energetic, and successful treatment of hydrophobia, as manifested in the human subject?

Wherefore are we recommended by our standard textbooks daily to evacuate the morbid secretions from the muciparous and other glands throughout the alimentary canal, in cases of epidemic fever? Why do they advise emetics where there is oppression from accumulation of mucus, or where, by the presence of nausea and vomiting, there is farther evidence of disordered stomach?

This, though, is rational treatment; but wherefore do they, in a case of hydrophobia, fasten down those more poisonous secretions upon the patient, by successively trying "opium—acetate of lead—tobacco—mercury—arsenic—

venesection, *ad deliquium animi*—cantharides—white hellebore—injecting warm water into the veins or solution of morphia," &c., &c.? In the name of humanity and mercy—in the name of the hecatombs of victims which each generation has yielded, we ask why this treatment? The patient is not only not permitted to die a natural death, but the physician virtually and actually assists, by such a course, a lethiferous poison still farther to crush all nervous energy—to paralyze all vital action. Would not every case of epidemic fever, or other malignant disease, terminate fatally, under a treatment such as that to which the rabid patient is subjected?

The nature of the disease, the symptoms manifested, and the post-mortem appearances, (so far as they are worth anything,) indicate the use of such medicines and means as will at once, by their diffusive nature, penetrate and cleanse the pulmonic and digestive apparatus of the morbid secretions as fast as they are effused, and stimulate and uphold the vitality of the nervous system. If these morbid secretions are not removed, but are fastened within and upon the patient, they must necessarily act powerfully upon the sentient extremities of the afferent nerves, and by the reflex action are conveyed back to the circumference by the efferent nerves—the fifth and eighth pairs particularly—to the face, pharynx, and larynx, and upon this excito-motory system of Sir Marshall Hall the violent spasms mainly depend.

Holding it to be a self-evident truth that the hydrophobic virus is poured out upon the mucous membrane—otherwise the disease could not be communicated by a *bite*, or the saliva—the indication in treatment is to remove the *cause*, and the *effect* will of necessity cease.

For this purpose we should have prepared the following tincture;—Myrrh, one pound; capsicum, two ounces; brandy, one gallon. Let these macerate about ten days in a warm place; decant, and add to the clear tincture one-half

pound each of lobelia seed, capsicum and valerian. After standing an additional ten days, the tincture is fit for use.

*Administration.*—When the undoubted symptoms of hydrophobia, which are known to every one, manifest themselves, with the paroxysms supervening, let the wound or cicatrix be kept constantly wet with cloths saturated with this tincture; use the hot, stimulating foot-bath, or the warm vapour-bath; if the surface be cold and cramped, give a strong infusion of bayberry and capsicum, with from two to three tablespoonfuls of the above tincture, every twenty, thirty, or sixty minutes, according to the severity of the symptoms and the obstinacy of the paroxysms, repeating the same until free vomiting ensues. As an adjuvant, to shorten the convulsions, chloroform may be inhaled, and injections of the above tea and tincture may be conjoined; indeed, the case may occur, where the difficulty of swallowing is so great, that our whole dependence, for the time being, must be upon these latter means, conjoined with the hot or vapor-bath. In such cases vitality is so much depressed, that these stimulo-relaxant injections are generally retained, until they impress the whole system, and produce full vomiting.

The *modus operandi* of this treatment will be apparent upon a moment's reflection. In the first place, the astringent or "anti-canker" infusion of the bayberry, rendered diffusive and stimulating by the capsicum, is a powerful detergent to the fauces and alimentary canal, while it stimulates, at the same time, the whole glandular system, to a more healthy action. The stimulating foot-baths have a derivative effect; and the vapour-bath both assists in relaxing the spasm, equalizing the circulation, and throwing all effete matters to the surface,—and thus are these "copious offensive perspirations" removed; while the compound tincture of lobelia, containing, as it does, the sanative properties of the myrrh, the diffusive, stimulating, and warming properties of the brandy and capsicum, the tonic and sedative effects



of the valerian upon the nervous system, and the potent, anti-spasmodic, diffusible, and revivifying properties of the lobelia, when thus combined, exert a generally recuperative power by relaxing nervous spasms; freeing the system (by emesis) of all irritating, poisonous secretions; by stimulating the organs of vitality to healthy action, and restoring the whole economy to its wonted healthy play.

After the bath, the vomiting, &c., the patient will become tranquil, and pass, perhaps, several hours in a refreshing slumber,—to awaken, however, to a renewal of the paroxysms, dread of water, &c., because fresh quantities of poison are secreted and thrown upon the *prima viæ*. These paroxysms must be overpowered, and the poison removed again and again by a *repetition* of the *same course* till all is calm again; administering during the *remissions* quinine and hydrocyanic acid largely, and repeatedly; and by thus persevering for a few days, we shall have the pleasurable satisfaction of witnessing a recovery from a disease which is emphatically the opprobrium of medical science.

Then would Prof. Wood (and other learned authorities) be no longer under the humiliating necessity of declaring the *ignorance* of the profession to the world, in the following language:—"The whole magazine of therapeutics has been exhausted in the treatment of hydrophobia." "I do not pretend," concludes he, "to recommend any course of treatment, where I can adduce *no sound therapeutical principle* in its support!"

Farther remarks upon hydrophobia, its nature, &c., and bites of venomous serpents, will be cited hereafter, which were cured by the rational principles herein described, though by different medicinal agencies.

Now it has been contradicted or denied that the saliva of a human being can impart the disease to his fellow,—yet the experiment of Magendie and Brischat goes strongly to prove its poisonous nature. Two dogs were inoculated with the saliva of a hydrophobic man. One was seized with



hydrophobia, and bit other dogs, and the whole lot became rabid. Some maintain that this was a mere coincidence,—but yet we have good reason—by analogy—to believe that the saliva of any animal may impart this disease, for the *saliva* is the *poison*, or a poisonous secretion mixed with it; and it matters not which it is, as the results are the same, and the indication for a sound, rational, hopeful treatment, is likewise the same.

Keeping in view, then, the fact that the virus, though inserted beneath the cuticle, soon manifests itself in the mucus of the mouth, with disordered stomach, it is the duty of the physician to free the patient from this poisonous agent as quickly as possible, in the same manner as he would keep the alimentary tract cleared in any other disorder,—and if he does so, we maintain that the patient in a vast majority of cases will be saved. And in attestation of this truth, I submit the following cases, which prove the truth of this assertion:

Dr. Miller, of South Carolina, relates the case of a man bitten by a rattlesnake, and he found him swelled, face black, tongue enlarged and out of his mouth, eyes starting from their sockets, &c. Two tablespoonfuls of olive oil were forced down him, which produced free emesis and catharsis in thirty minutes, and the relief was instantaneous. Now if the “magazine of therapeutics” advised by Professors Wood and Gibson had been *fired* into this patient, he, without doubt, would have been hurried off to the land of spirits.

Mr. Ireland, surgeon, relates five cases, in all of which there were violent symptoms present from the bites of very poisonous serpents, for which he gave them Fowler’s solution in very large (two dram) doses. In all it produced severe vomiting and purging, and cured them. How? Not by fastening down upon the patient the morbid or poisonous secretions, but by throwing them out of the system. Had “opium, mercury, cantharides, belladonna, arsenic,” &c., (which Professor Gibson “considers the most powerful,”)

been used, would they not all have died, or, correctly speaking, been *killed* by the doctor? I leave the answer to any man possessed of the sixth sense—*common sense*—to answer.

Prof. Wood says: "A poison seems to pervade the system, which first damages, and then annihilates nervous power."

Now the "New School" practitioner acts rationally upon this well-known fact, and removes the poison *before* it overwhelms the nervous system.

I will cite a case, showing what we may expect from the use of intermittents:

Dr. Adams, of Rochester, reports the following case:—H. A., æt. sixteen years, had been bitten by a rattlesnake ten years previously. Ever afterwards, towards the latter end of each month, he had an inflammatory attack in his eyes, with diminished vision, and the leg, that had been bitten, would swell enormously, so as to involve the whole of the same side of the body. A kind of mania would seize him; and though at other times a most peaceable lad, when under the influence of the paroxysm he would attempt the life of any one that offended him. The pain was very intense. He had tried both doctors and quacks in vain. Dr. A. commenced treatment the 20th of the same month, by giving him powders of quinine and hydrocyanate of iron. The next month the paroxysms were later than usual, and not half so violent.

The 20th of the next month he resumed the powders; and instead of a paroxysm, he only passed a sleepless night. The leg was rubbed with tincture belladonna.

Again: Mr. R. came to me with a hand much swollen, attended with a burning, itching pain, chills or rigours, fever, &c. This was the result of a scratch from a cat, labouring under symptoms of hydrophobia. After poulticing a few days, the taking of some cooling purgative, dieting, &c., it would subside. He consulted me for permanent relief. Quinine being then very high, and the pay poor, I

gave Fowler's solution as an antiperiodic and alterative after the inflammation was subdued by the usual means.

This was entirely successful, and he never had a return of the disease.

I have seen several cases of hydrophobia reported, in which the fact was mentioned that there were great collections of tough mucus in the throat, or fauces, and often ineffectual attempts to vomit. In one case the patient is reported as having vomited voluntarily, and relief was *complete for a time*. Here *nature* pointed out the treatment to the attending physician, but the prompting was unheeded; and as soon as fresh portions of the morbid virus were thrown out, the brain felt its poisonous influence, and by the reflex action spasms again ensued.

Lastly, I read of another case reported, in which the medical attendant seeing an effort to vomit, administered some *tartar emetic*, and gave the patient great relief. But he adds:—"In a few hours the spasms returned, and the patient finally sank." Of course; for nothing was done to sustain him with one hand, and the emetic was never repeated, to remove the cause of the spasms. Here we see, however, that even a deadly sedative emetic was very beneficial for a period; and had even it been repeated again and again with tonics and stimulants *ad interim*, the results might have been different.

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## RETENTION OF URINE.

*Retention of Urine* is a term that includes things as different from each other according to their cause and state, as any diseases you can imagine. It is said, there may be retention of urine in the pelvis of the kidney, in the ureter, in the bladder, and in the urethra. In the first two cases, we, in the first place, are in want of symptoms to point out their existence distinctly; and in the next place, if we knew

perfectly well what was going forward, we could do nothing for the sufferer. There are many causes for the retention of urine in the bladder, very different in their nature, and requiring very different treatment, when any can avail. Retention of urine may exist in the kidneys and ureter as a consequence of retention in the bladder—an unfortunate patient dying of cancer of the uterus, may have these additions to her sufferings, from pressure on the bladder or on the ureters themselves. An abscess in the perineum may press on the neck of the bladder, and cause retention of urine; the patient, in such a case, may not have made water for two or three days, and yet the surgeon not hear any complaint of a want to make water, or any observation at all upon the subject, unless he happens to ask the question; but generally when you lay open the abscess, and evacuate the matter, which in some cases is in considerable quantity, the bladder will act of itself, and discharge its contents, without leaving behind any tendency to a return of the retention. Such a case will sometimes give more trouble. In like manner tumours forming in the pelvis may cause retention of urine from their pressure.

Morbid growths in the cavity of the bladder itself, or enlargements of natural structures, as the uvula of the bladder, as also calculi and inflammation of the coats of the bladder, may be the cause of the retention of urine. The bladder may be unable to expel its urine from some fault in the organ itself. Thus, suppose a man falls from a height, and receives a hurt in his spine, paralysis of his lower extremities follows, and the bladder partakes in the paralytic affection: here, if we lay our hand over the region of the bladder above the pubis, we feel the tumour caused by its distention, and all we have to do is, to introduce a catheter, draw off the urine, and repeat this every six or eight hours to afford temporary relief, and relieve the patient for a short time; but such a case will never recover—he will die in from eight to ten weeks. There is another cause of re-

tention of urine caused by the condition of the bladder itself. A man advanced in years, of studious and sedentary pursuits, and a full habit of body, comes to you and tells you that he has to get up very often during the night to make water, that he passes but little at each time, and is obliged to make much effort to get away that little. Such men will often tell you, that after these efforts, they had still the feel as if they had not entirely emptied the bladder; they had not the comfort usual in evacuating a distended bladder, and that they experienced some pain in their straining to pass more; by and by, this man finds he cannot make any water at all. Now, this is a case where the bladder is in a *less sensible state* than natural; there is no inflammation whatever in it. The first time the patient finds he cannot pass his urine, is generally after a long sleep. Sometimes he will remain five or six hours without being able to pass any, but will not send for a surgeon, and after this it will begin to come away; not, however, in a full stream, but dribbling, what is called *stillicidium urinal*; yet, as in this way, he makes quite as much urine in the twenty-four hours, as if it came naturally, neither he nor his friends imagine there is such a thing as retention in the case. Suppose the man, say seventy years of age—he has suffered very little pain or trouble from the distention of the bladder—he sends for you, and when you arrive, he tells you he has got an unpleasant complaint, that he can't keep his water, and just requests you to stop this constant passing of it, and that then he will be quite well; yet this patient, if not relieved of the retention, will have his constitution become affected with urinary fever; he gets a somewhat severe rigour; he then gets into the hot fit, which lasts about half an hour; this is followed by the sweating stage, which is extremely profuse, and may last for hours. It is not a partial sweat, but general over the whole body, and although he throws off the bed-clothes, he will be obliged to change his shirt several times in the night—in fact he lies in a kind

of warm bath all night, and sheets, bed, and all are drenched. If a second attack of this fever comes on, there will be some difference discernible in it from what you observed at first. In the previous attack the skin of the patient *felt cold* to the hand of an examiner, while the patient was shivering, but the second time, while the patient himself feels excessively cold, the skin feels hot to the hand of another person; it goes on, his head becomes affected, and off he goes. This urinary fever is a true intermittent, and so strongly does it resemble common ague, that if you were to come in during a paroxysm, you might readily mistake one for the other; but the paroxysms of the urinary fever are very irregular in their periods of return; in this it essentially differs from ague, and by it could always be distinguished readily. Now, you read that a patient labouring under this fever has a urinous smell from the skin, or even his breath, but there is no truth whatever in this; the constant dribbling of urine wets everything about him, and diffuses the urinous odor, throughout the whole house perhaps, but I never observed a urinous smell, except where urine was coming away in this manner. Some lighter shades of this fever will attend lighter degrees of urinary disease, or they might be considered as premonitory symptoms that may or may not eventually end in the severer form, but, at all events, will show a disposition in the patient to become affected. He will be chilly without any very apparent cause; his skin will feel constricted and rough; he will dread any exposure to a north-east wind, or even to get between the cold sheets at night; and will have his bed warmed, yet he may not have anything like a regular rigour.

*Treatment.*—The patient should have a warm bath and a small dose of aconite, say one or two drops in a little warm water every half hour. After the warm bath hot packs should be applied on the lower abdomen, and changed as often as every half hour. Also give the following compound.



R.—Barosmin, ..... gr. x.  
 Quinine, ..... gr. vj.  
 Eupatorin Pürpurin, ..... gr. x.  
 Sacch. Alba, ..... ʒj.  
 ℞. ft. pul. No. xij. Sig. one every two hours.

The bladder should also be evacuated with the catheter as often as once in ten or twelve hours.

There is a cause of retention which you must carefully distinguish from the last, in which all you had to do was to draw off the urine, and administer a mild treatment. In this case a single introduction of the instrument does irreparable and permanent injury. It is this; an old man finds he has repeated calls to make water; at each time he goes to the utensil, he has to force himself, and in the exertion, experiences some pain; he passes only a spoonful or two at each offer, and feels satisfied. You lay your hand over the pubis, but there is no tumour there, perhaps, although you may think you can perceive it, for there may be retention of urine, and yet the bladder be so contracted that it cannot be felt externally. Here, if you once introduce a catheter, that man never makes water again without the aid of one; he must, as long as he lives, use a catheter to empty his bladder.

The treatment for such a case consists in rest, and a free use of queen of the meadow in infusion. If that does not remove the difficulty, apply hot packs over the abdomen, and give freely of barosmin, say one or two grains every two or three hours.

There is another kind of retention of urine. A man for two or three years, perhaps, perceives that he makes water more frequently than his neighbours. He has been in the habit of indulging in wine or punch, or something of that kind,—now, if on some occasion, when he wants to make water, he neglects the call of nature, being, perhaps, loath to leave his liquor or his company, he will get retention of urine. He goes home, suppose, after drinking a good deal,



and after, as I said, neglecting the call of nature before, during the evening, he now tries to pass water before he goes to bed, but cannot pass a drop. He does not mind this, however, but goes to bed, and awakes with *great pain* in the region of the bladder. An irritable bladder will get retention in the same way; the man is, perhaps, in a court of justice, and cannot get out when he wants to make water. In these cases you must use the catheter without any delay—you have nothing else for it.

What position is the best to put your patient in for the introduction of the catheter? Wherever you can, make him lie on his back, for as many patients faint as the water is coming away, he may fall over you if you put him in an erect position; and besides this, you have him favourably situated to introduce your finger into the rectum, if it should be required, which is often the case. You should seize every opportunity that comes across you to practise the introduction of the catheter into the bladder; there will be nothing in your future practice more likely to turn out of greater importance to yourself and others than dexterity in this operation, and this is not to be obtained without that practical education of your hand which your opportunities may daily furnish you the means of accomplishing, if you sufficiently appreciate the necessity. Your anatomical knowledge of the urethra will do something; your passing a sound or bougie in the dead body will add something; but nothing will make you feel steady and dexterous but the frequent practice on the urethra of the living man. When you are introducing an inflexible instrument, then carefully keep the open end in the middle line, and close to the belly, and draw the penis upon the instrument. I may just mention that the secret of introducing the long instrument, called Home's catheter, is, to introduce it far before you begin to turn it. Should the point of the instrument meet an obstruction, it may only have hitched against the triangular ligament of the urethra alone, and this circumstance

you can know by the simple contrivance of letting your fingers relax on the instrument, and it will make a half turn or circle of itself, if it is impeded by the ligament.

The catheter is often stopped at the commencement of the membranous part, and may be thrust through the bulb. There is nothing in all surgery so material as being able to introduce the catheter well. As to using force, you will not have to use force in one case out of fifty in the introduction of a catheter. Force should never be used when the urethra is sound. Spasm is mentioned as one of the causes of resistance to the introduction of the catheter, and it is useful to keep up that notion, as we cannot sometimes succeed in passing the instrument when we most wish to do so, and this without our well knowing why. In such a case we may lay the blame on spasm; but for my own part, I have always felt more resistance from spasm in *withdrawing* than in *introducing* an instrument into the bladder. I have sometimes certainly felt considerable difficulty in introducing a bougie or catheter, and by using gentle friction on the perineum, and waiting a little, the instrument has glided in easily, and this in a large urethra, but such a case as this I do not meet once in a year. After the introduction of the catheter, it will often happen that a rigour comes on, but it must not be imagined that it is always an immediate, or even a very quickly succeeding result. No: the rigour may come on in half an hour, or in twelve hours, or even not for forty-eight after the introduction; and from the length of time which has elapsed, the catheter is often not supposed to be the cause, but it is notwithstanding. This occurrence happens in patients with an irritable bladder, or who have been previously the subject of some disease of the urinary organs. To prevent the recurrence of this rigour, keep your patient quiet, and give him a *full* anodyne draught. Urinary fever is one of the dangerous effects that may arise from the introduction of a catheter; we shall, however, defer saying more of urinary fever at present.

Bleeding from the urethra is sometimes a consequence of the introduction of a catheter, even when it is done in the best manner and without violence. When you first withdraw the instrument from a canal disposed to bleed in this manner, there comes a little blood, which ceases by degrees, and a coagulum forms in the urethra; the next time the patient goes to make water, he finds great difficulty in passing any, but after straining some time, he expels the coagulum, and then comes on the bleeding again. Sir E. Home tells us not to make compression on the urethra to stop this bleeding, because if you prevent the blood coming out, it will flow into the bladder. Now, you are to pay no attention to this doctrine, but do the very reverse of what it would inculcate. The blood has never been known to go backwards into the bladder under the circumstances we are considering. There is no use whatever in giving such a patient large quantities of spirits of turpentine, acids, and other things supposed to have the property of stopping hemorrhage, but which often injure the stomach of those made to swallow them. You must compress the urethra in this way: get a napkin and roll it up hard, put it between the patient's thighs, and press it up against the perineum for ten minutes, and the bleeding stops; but this, however, is not without its inconvenience, for the next time the patient goes to make water, he can't pass a drop at all. This arises from a coagulum which has formed in the urethra, and the patient with some straining at length expels it, and the inconvenience is removed. If, after compressing the urethra and stopping the hemorrhage, it should return, when the coagulum is removed, from five to ten drops of the oil of erigeron should be given every half hour. Or the bladder may be injected with a mild decoction of matico or geranium.

#### MAMMARY ABSCESS.

The various changes that occur naturally in the condition of the uterus are not unfrequently accompanied by

sympathetic affections of the female breast, either natural or morbid. Some of the latter may be considered at present, others when we shall have to speak of particular diseases that the breast is liable to in common with other parts.

There is one affection of the breasts of women which mostly occurs after parturition, but sometimes before it, called *mammary* or *milk* abscess; it generally occurs within a month after parturition, but you will sometimes meet it coming on three months after. It is ushered in with a rigour, which is succeeded by heat, sweating, thirst, and other febrile symptoms. There are many circumstances which may induce a rigour in a female at this period, but if it is to end in mammary abscess, you will find, on examining the breast, that the patient is able to point out one particular spot which is very painful, though nothing at the time may *appear* to show what is to follow. If the disease be left to itself, it is very slow in its progress—it will take perhaps a fortnight or three weeks to come forward. Even when it bursts the patient says she is better, and really seems to be doing very well, the painful distention relieved, and the fever generally subsided, you will have to suffer the disappointment of finding another abscess forming in some other part of the gland, or even in the other breast.

While this suppurative process is going on, the secretion of milk is diminished, the infant's endeavors to obtain nourishment give considerable pain, not only in the affected breast, but even drawing the sound breast is productive of much uneasiness, and the consequence is a greater accumulation of milk, which adds to the distress.

The contents of these abscesses are pus, and often milk mixed with pus. Sometimes the *entire* of the breast seems to be inflamed, and gets considerably larger and harder than that of the opposite side, and is accompanied with

high inflammatory fever; the patient suffers much more than in the preceding case, and its course is generally more rapid. Now, here it is not the substance of the gland itself that is affected, but the cellular substance between it and the pectoral muscle, and this form is called an *encysted mammary abscess*. Occasionally there will be a case of this kind which will have given little local or constitutional uneasiness until the matter has come nearly to the integuments, and this it does by making its way through the substance of the gland. There are various causes assigned for the production of mammary abscess. If the woman is obliged from her station in life to use her arm too much while the breast is distended with milk—if there be any cause to render her distressed in mind—if she suffers great depression or excitement—if she gets a cold that produces a feverish condition of the system—if strong measures be employed to put back the milk, particularly local ones, without proper attention to other treatment, she will be very likely to get this disease.”

*Treatment.*—The treatment for mammary abscess in the early stage consists in keeping the breast thoroughly wet with equal parts of the tincture of arnica and lobelia. This can be done by wetting pads of cotton in this mixture and reapplying them as fast as they get dry. The bowels should be opened by means of small doses of neutralizing mixture and anti-bilious physic, and the fever controlled with aconite. If the breast should be very painful, tincture of aconite or opium may be added to the mixture for local application. If, after the application has been made for twenty-four hours, there should still be symptoms of suppuration, a poultice composed of equal parts of pulverized slippery elm, flax seed, and bayberry, moistened with warm water to the consistence of a paste, should be applied, and kept constantly wet with equal parts of the tincture of arnica and opium. As soon as pointing occurs, or an ac-

cumulation of matter exists in sufficient quantity to warrant the operation, the abscess should be opened, and contents discharged; after which the breast should be injected with a small abscess syringe three or four times a day. The best preparation for this process is a warm decoction of *hydrastis Canadensis*. The poultice may be continued, and the breast thus treated until the cure is effected. Or, if the abscess should assume a chronic character, it should be injected once or twice a day with a mild solution of sulphate of zinc. The internal treatment should consist of vegetable tonics, iron, and nutritious diet.

#### PARONYCHIA.

There is an abscess which is usually found at the ends of the fingers called *paronychia* or *whitlow*, of which there are some varieties, chiefly owing to their seat. One description of whitlow is a mild and trifling complaint; it is where a little collection like a spot of milk appears just under the cuticle. All that is necessary is to cut the cuticle from about this, or puncture it, and it gets well of its own accord. The second variety is where the matter forms under the whole thickness of the skin. If it forms under the nail, the nail will inevitably fall off; but, after all, this is the worst that can happen here. The third kind, commonly called the *malignant*, is a much more serious disease. A man will go to bed quite well, but soon after he feels a dreadful pain in the top of one of the fingers, which keeps him in torture the whole night. In the morning, when he looks at his finger, there is nothing to be seen; very quickly he is seized with the inflammatory fever, as it is technically called—that is, where the pulse becomes much quicker, but with less strength. Sometimes the pain is so intense as to cause delirium, and yet after all nothing is *seen* in the finger itself that could account for this disturbance. So high does the fever go on some occasions, that patients have died of it and the pain and irritation caused by this



form of the complaint, and some have been only saved by amputation. Often, if left to himself, the patient has a feel as if the pain and tension were creeping up the arm; it shifts first to the middle joint of the finger perhaps; some time afterward he will tell you the pain is all in the palm of the hand; it next passes the annular ligament of the wrist, and I have sometimes opened abscesses in the middle of the forearm which began in this way. When the pain is in the palm of the hand, an opening made into that region will give exit to very little matter, and the relief is but temporary. This form of paronychia is in the sheath of the tendons; between this strong fibrous membrane and the periosteum, and it always makes its way where these sheaths are weakest, as in the cleft between the fingers. When whitlow breaks, it heals rapidly, but with perhaps the loss of a finger; or the joints may become ankylosed; or the hand itself may become stiff and useless; sometimes where the joints of the finger do not become ankylosed, you can feel the ends of the phalanges, grating on each other, being deprived of their cartilages, and the bone itself, after a time, appears to be absorbed; something extraordinary certainly does take place, for you feel the top of the finger perfectly soft, with nothing hard about it, but perhaps a bent, ill-formed nail; sometimes it will be the middle phalanx that will disappear, leaving the extreme one, and quite movable, as if only hanging by the integuments. The first and second kinds of whitlow are found generally in those who work much at their needle; the third variety is often observed in sailors and others who are much employed in pulling ropes."

*Treatment.*—The treatment for the milder form of paronychia consists in applying a solution of nitrate of silver to the part, of the strength of fifteen grains to an ounce of water. The best method of applying it is, to wrap the finger in soft lint, and keep it constantly wet in this solu-



tion. This application will usually cure the mild form of paronychia in from twelve to twenty-four hours. In the more severe form, where the disease commences on the bone or the periosteum, the finger or hand should be laid open by making a long and deep incision to the bone. As soon as the bleeding is over, the wound should be injected with a strong solution of sulphate of zinc, and kept saturated with equal parts of tincture of lobelia and opium. If there is much inflammation, a slippery elm poultice may be applied, and kept moistened with the above wash. If there are constitutional symptoms, they should be treated according to their nature and severity. The practice of applying rotting poultices to this affection is very objectionable, as it not only jeopardizes the use of the hand, but, in some cases, the life of the patient.

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## GANGRENE AND MORTIFICATION.

Gangrene and mortification may arise from a variety of causes, such as intense inflammation, arrest of circulation, severe contusions, compressions, certain specific poisons, etc. Gangrene may also occur spontaneously in old people, when it is called *senile*, and is usually owing to a disease of the coats of the arteries. Fig. 73, represents this kind of gangrene. See Inflammation and Gangrene in another part of the work.

### SYMPTOMS.

The symptoms of gangrene and mortification are both local and constitutional. The local symptoms are death of the part, followed by sloughing and deep ulceration, unless it be dry gangrene, represented in the Figure, which dries and becomes very hard. The constitutional symptoms depend much upon the extent and nature of the gangrene. If it be dependent upon active inflammation, and great debility of the parts, there will be feeble vitality, loss of appe-

tite, great prostration, and if the gangrene be internal, there will be hiccup, vomiting cold sweat, and death. But where



FIG. 73.

the disease is confined to the portions of the body, they correspond with the extent of the injury.

#### TREATMENT.

Where there is a tendency to gangrene in any of the internal organs, quinine, capsicum, baptisin, yeast and other stimulants and antiseptics, should be given in such quantities as are necessary to maintain the vitality of the parts. In external gangrene, poultices, made of pulverized indigo weed, sweet fern, Peruvian bark, slippery elm and yeast, should be applied, and changed every hour or two. If this does not arrest the gangrene, wet the poultice with the following lotion :

Rx.—Best French brandy,.....Oj.  
Sulphate of zinc,..... $\bar{3}$ j.

Dissolve the zinc in two ounces of water, and add to the brandy, also, add two ounces of pyroligneous acid, and keep the poultice wet.

Tonics and anodynes should be administered internally. The following pill I have used to good advantage,

R.—Pulv. myrrh and capsicum, .....āā gr. xxx.  
 Prunin and baptisin, .....āā gr. xx.  
 Ex. garden lettuce, .....3j.

Mix, and form fifteen pills; give from three to five per day. Give the tonic wine bitters, one half wine glass full, three times a day, and if the arteries be affected as in *senile* gangrene, small doses of iodide of potassium, in connexion with Beach's alterative syrup, will be found beneficial. The diet should be as nutritious as the patient can bear, and the bowels should be kept regular by means of mild laxatives.

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## BURNS AND SCALDS.

The treatment of different cases must be varied. For a simple superficial burn, involving the cuticle alone, almost any remedy will be attended with a successful result, so that one will have a high opinion of cold water, another of warm, another of turpentine, another of compound tincture of myrrh and capsicum, according as each has applied this or that remedy. In the vesicating burns, the roughened cuticle should be carefully handled, and applications should be more cautiously applied and removed, lest the cuticle be detached, and the surface beneath be exposed to the air. In case there are little blebs, these should be punctured with a needle or lancet, great care being observed to prevent the ingress of air to the surface of the burn beneath the cuticle. Any application that excludes the air, and is emollient and tends to maintain a comfortable and equal temperature, will fulfil the indications of treatment. For this purpose, the flour of slippery elm dusted over the surface, or warm linen cloths, wet in warm mucilage of elm, or a thin layer of soft carded cotton, moistened with diluted whisky, and held by

a few turns of the roller, will be useful. The warm packs of mucilage of elm are beneficial, but that application which excludes the air the most completely and with the least irritation to the part is best. If the burn slough, a poultice of slippery elm should be applied until the slough is removed; if there be fungous flesh, this may be removed by the use of pulverized sanguinaria, phytolaccin, or caustic potassa. Dr. W. Beach recommends a poultice of slippery elm and milk, spread on linen or muslin covered with sweet oil. When used, this should be covered with oiled silk to prevent evaporation. After this the black salve.

A salve which I have found efficacious, is made of the following articles:—*R.* Brown diachylon, lb. ss., rosin, ℥iv., bees wax, ℥iv., Venice turpentine, ℥j. Melt well together, and spread on linen cloth, and apply.

Several other topical applications have been recommended. Starch either wet or dry is often used. Acetate of lead is recommended by some, but it has no advantages over the extract of quercus alba, the geranium maculatum, or the statice limonium. A solution of borax is mentioned. For a simulating application, Dr. B. F. Hill recommends:—*R.* Spirits of camphor and tincture of opium, āā ℥ss., spirits of turpentine and tincture of capsicum, āā ℥j, olive oil, ℥ij. This preparation is most useful after the inflammatory stage has passed away. It should be applied once or twice a day, and may be covered with a poultice of slippery elm.

Rum and molasses is another remedy recommended by the people of the south. These substances should be intimately mixed and applied on linen, or by saturating raw cotton, or it may be applied to the surface by means of a brush, over which is placed oiled silk or a poultice. Prof. Gross recommends a mixture of linseed oil and carbonate of lead, to be applied with a swab. These various remedies are referred to in order to show the various opinions of medical men. Nothing can better fulfil the indications than

the flour of slippery elm made into a paste with milk or cream, wet in warm, tepid or cold water according to the indications of the case. The constitutional treatment should be such in the stage of prostration as will favour re-action. Carb. ammonia, capsicum, wine whey,—and in cases where deglutition is lost, injections of the compound tincture of lobelia and capsicum, with brandy, should be administered. A small quantity of the same medicine in the mouth will tend, by its stimulating effect, to excite deglutition. If the respiration be deficient, a sudden shock to the system by water sprinkled on the bare breast will assist much in the restoration of consciousness. Galvanism would likewise tend to accomplish the same object. As soon as the deglutition and respiration are established, if the patient still remain weak, the brandy and egg mixture should be given. Thomson's composition tea, prepared by boiling one teaspoonful of the powder in one pint of water, a gill of milk, and tablespoonful of white sugar, drunk freely, will tend to establish re-action and nourish the system. If re-action is great, and the symptomatic fever excessive, it should be controlled by aconite. The warm, wet sheet may be beneficially applied when cutaneous heat is excessive. In these cases care should be taken to properly nourish the system, for when a large part of the cutaneous surface of the body has been destroyed, the excretions are not removed from the blood so readily, and there is at the same time a great demand for fibrin, with which to repair the injured tissues. The result of this is often the production of typhoid symptoms, delirium with subsultus. At this time the surgeon might be unable to decide whether to permit the patient to take the egg and brandy mixture, or beef-steak, with a view to supply material, out of which the system can manufacture fibrin, or to administer aconite and other antiphlogistics to reduce the fever.

Prof. Calvin Newton in his lectures used to relate a case of this kind. A young man had been severely burned, de-

stroying nearly half of the skin of the body. By proper stimulation, re-action was restored, and the healing process went rapidly on for several days. At length typhoid symptoms suddenly appeared, and counsel was called. The question was, whether the typhoid state arose from deficient nutrition with which to supply healing material, or from some other cause. Dr. Newton thought it best to give beef-steak, rather than medicine. This was supplied, and the next day the typhoid symptoms all disappeared, and the healing process again commenced. In common allopathic practice, the course pursued is such as to destroy too much of the nutrition of the blood,—there is so much fear of fever and inflammation, that the system does not receive a proper supply of material for repairing the lesions, and the consequence is, that the patient sinks with adynamic fever. When much tissue is destroyed, the remaining healthy skin has an increased labour to perform in depurating the blood,—consequently diaphoresis should be favoured, and likewise diuresis, stimulated so as to prevent the accumulation in the blood of disintegrated tissue. To accomplish these indications, laxatives, leptandrin and euonymin will be necessary to open the bowels, cleavers, cupurpurin and marsh mallow to excite the kidneys, and asclepin, capsicum, or the warm bath, to promote diaphoresis. When there are cerebral symptoms, these should be met with the appropriate remedies.

Scalds of the mouth, pharynx and glottis, then occasionally occur from the drinking of hot water, or the inhalation of vapour or flame. The scald produces inflammation of the mouth and fauces, which may produce, by extending to the glottis, suffocation and death. The inside of the mouth appears white and scalded, the patient complains of great pain, and difficulty of breathing follows, which, if not relieved, may terminate in death.

The treatment should be both local and constitutional. Cool gargles of mucilage of gum acacia, or slippery elm, or flax-seed tea should be used, and a warm and relaxing poul-

tice should be applied to the neck, and a wet compress covered with oiled silk, to prevent evaporation. If fever arises, aconite should be given in mucilage once in two or three hours; the bowels should be opened by means of injections, and if the inflammation is very severe, enemata containing a teaspoonful of tincture of lobelia, to produce diaphoresis, should be given. When it is necessary to open the bowels, jalapin and cream of tartar in mucilage will form a useful compound, the quantity being adapted to the age of the patient. The operation of laryngotomy or tracheotomy may be necessary in case of œdema of the glottis arising from inflammation. But if the treatment above recommended is perseveringly applied, and the constitutional symptoms subdued at the onset, the operation will seldom be needed, and even when resorted to, its success is exceedingly unfavourable, and its performance often difficult on account of the shortness of the neck and the small size of the trachea.

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### ULCERS.

An ulcer is defined by Liston to be a solution of continuity, accompanied by the secretion of pus, or other fluid. He makes six varieties, viz.:

1. The simple, healthy, or healing ulcer.
2. The weak or sluggish ulcer.
3. The indolent.
4. The irritable.
5. The specific.
6. The varicose.

These varieties are not dependent merely upon local causes, but are much modified by the condition of the constitution. The character of an ulcer is an indication of the state of the general system. The characteristics of simple or healthy ulcer are, a circular or oval surface, slightly de-



pressed, studded with granulations, secreting pus, and presenting a tendency to heal. The prognosis in this variety is favourable, and the treatment is simple, consisting of water-dressings, and slight pressure with adhesive strips, or a bandage. The indications are to maintain the strength of the system, and to remove all local causes of irritation, such as the contact of air, or the friction of clothing. The black salve of Dr. Beach forms a good application. The ulcer should be cleansed with warm Castile soap-suds, and cold applications rarely applied. In the application of adhesive strips, or a bandage, care should be taken to give a place of exit for accumulating pus.

The weak or sluggish ulcer occasionally occurs, and is frequently caused by the continued application of emollient poultices. The granulations are semi-transparent, high and flabby, rising in large, exuberant, gelatinous, reddish-looking masses, above the surface of the ulcer. The granulations readily slough, having but a feeble vitality.

The treatment of this variety should consist of constitutional means to invigorate the system, tonics, stimulants and nourishing diet, and of the local application of astringent and stimulating compounds, such as the tincture of myrrh, capsicum and geranium. An occasional ablution of the part in a solution of sesqui-carbonate of potassa, or extract of white oak bark, will be found beneficial, or sprinkling it with finely pulverized sanguinaria or alum, will be of service. Doctor Erichsen highly recommends the following formula:—Sul. zinc, grs. xvi.; comp. tinct. of lavender, and spirits of rosemary, āā. ℥ii. Water, ℥viii., as an astringent application. The limb or part should be elevated, and gentle pressure should be made by means of a roller or adhesive strips. These should be placed so as to leave a space between them for the escape of pus, and over them, lint, covered with cerate, and retained by a bandage. The water-dressing is sometimes used, consisting in the ap-

plication of a piece of patent lint, of the size of the ulcer, dipped in tepid or cool water, to the part, and covering this with a piece of oiled silk, somewhat larger, and bound down by a roller.

The indolent ulcer is deep and excavated, covered with irregular and imperfectly formed granulations, which exude a sanious pus. The edges are hard, irregular and rugged. The tissues adjacent are congested, and firmly adherent to the subjacent fascia. The sensibility of the part is diminished, and pain is seldom troublesome. This variety is caused by feeble capillary circulation, which may arise from a local or a constitutional cause. It most frequently occurs in men about the middle period of life, and is usually located in the lower extremities in the lower third of the leg, just above the ankle.

The treatment should be such as will tend to depress the edge, and elevate the base of the sore. The means of effecting this are stimulation and pressure. For a stimulant a poultice of slippery elm sprinkled with pulverized myrrh and capsicum will be useful. In many cases, however, this will not be sufficient, and it will be necessary to destroy the diseased edges at once, by nitric acid, or potassa fusa, or sulphate of zinc, and afterward cover the part with a poultice of slippery elm, keeping the limb elevated, and sustaining the strength of the patient. Prof. R. S. Newton, of Cincinnati, uses the following formula:—*R.* Pul. sulphate zinc,  $\mathfrak{z}$ ij.; pulv. hydrastis,  $\mathfrak{z}$ j.; pulv. podophyllum peltatum,  $\mathfrak{z}$ ss. Mix. Fill the cavity of the ulcer with this, and let it remain as long as can be well borne, or until it has destroyed the dead tissue, then apply slippery elm, wash in cold water until the part sloughs. Then apply the lead plaster, or Beach's black salve, or the emplastrum saponis. This treatment, conjoined with proper constitutional remedies, general tonics, and stimulants and rest, will usually effect a cure. The application of pressure, however, will often be necessary in cases that cannot be well subjected to

the treatment described. Before this is applied, the limb adjacent to the ulcer should be stimulated with the application of the comp. tinct. of myrrh and capsicum, and elevated, and steamed over medicated vapour; then the ulcer should be filled with the sesqui-carbonate of potassa, letting it remain for some hours; then wash the ulcer with a weak solution of tincture of capsicum, say ℥j. to ℥j. rain-water. Then the emplastrum saponis should be spread on calico, which should be cut into strips sixteen to eighteen inches in length, and an inch and a half in width. The centre of the strip should be smoothly laid on the side of the limb opposite to the sore, and its ends are to be brought round the limb and crossed obliquely over the ulcer. A sufficient number should be applied to cover the sore and the limb for two inches above and below the ulcer. Each strip should overlap about one-third of the adjacent one, and all should be evenly and equally adjusted, so as to make equal pressure upon all parts of the diseased limb. A roller should then be applied to the limb, from the toes to the knee. The lead plaster may be used as a substitute, or the adhesive, or emplastrum resinæ, although this is thought by most surgeons to be more irritating to the ulcer. The application of these strips should be renewed every forty-eight hours, and, if the discharge be considerable, holes should be made in the strips for the escape of pus.

The inspissated juice, evaporated to a salve of the *pyrolæa decandra* leaves, forms a valuable remedy for producing a slough. Likewise that of the *rumex crispus* and of the *sanguinaria Canadensis*. These should be applied on linen cloths, until there is a line of demarkation between the diseased and healthy tissue. The ulcer may afterwards be healed by means of the black salve. Pressure may be made upon these ulcers by means of collodion. It should be applied so as to form a thick impervious covering; its contraction by means of the evaporation of the ether produces a degree of pressure that is many times highly beneficial.

The irritable ulcer is most often found in females of a nervous and bilious temperament, about the middle period of life. It is usually situated about the ankle or shin, and is small in size. Its edges are not elevated, but are irregular, the surface is grayish, covered with a thin layer, and discharging a thin sanious secretion. It is quite painful, preventing sleep, and thus injuring the general health. The treatment should first be constitutional. The alcoholic vapour bath should be used twice a week, and if the stomach be inactive and digestion impaired, an emetic of lobelia will prove highly beneficial. This should be followed by the administration of tonics and stimulants, the hydrastin, and xanthoxilin, and euonymin, are valuable remedies for this purpose. If there be evident anæmia, iron should be administered. If the ulcer appear during lactation, especial care will be required in order to sustain the system by nutritious diet, tonics, and porter or ale. The compound syrup of stillingia, or Beach's anti-mercurial syrup, with the muriatic tincture of iron, will be highly serviceable. Especial attention should be given to restoring the secretions of the skin and kidneys, by baths and mild diuretics. It is impossible to cure these cases unless the excretions are properly restored, and the organs of circulation properly stimulated. Pure air, good food, and cleanliness are very important means of cure. Rest at night should be procured by hyoscyamin, scutellarin, and cypripedin, either separately or alone. These are preferable to opiates, inasmuch as they do not arrest the secretions.

To allay pain and irritability, a poultice made of equal parts of pulverized lobelia herb and slippery elm, with laudanum, will be useful, or the application of a thin plaster made by spreading the inspissated extract of conium on soft linen, and applied, will relieve the symptoms. Sometimes dry applications will be better than moist. These should consist of flour, or finely pulverized chalk, or the powder of the *lycoperdon bovista*. But when the ulcer re-

sists all these means it should be washed in a strong solution of nitrate of silver, followed by some sedative and emollient application. It may be necessary, in some cases, to entirely destroy, by means of the chloride or sulphate of zinc, the ulcerating surface, and then to apply a poultice of ulmus and pulverized myrrh to favour the healing process, followed by the use of the black salve of the Eclectic Dispensatory. When the granulations are spongy, and discharging watery fluid, it may be necessary to apply an astringent compound, for which purpose the extract of quercus is admirably adapted. Dusting the surface with very finely pulverized nut-galls will likewise be beneficial.

The inflamed ulcer is sometimes spoken of by authors, though not mentioned in Liston's classification. It is characterized by symptoms of inflammation, redness, swelling, pain and heat. The discharge is often thick, and offensive and bloody. The treatment should consist of cold applications, the elevated position of the part, and the use of poultices of ulmus, wet with cold water, and frequently changed so as to keep down the heat. At the same time, the patient, if there are symptoms of constitutional excitement, should take aconite and veratrin internally, an occasional warm bath, a cathartic of the fluid extract of senna and jalap, or of some other effectual purgative. After the local symptoms are reduced, the constitutional and local treatment that is recommended for other varieties of ulcers will be appropriate.

The sloughing ulcer is another variety not included in Liston's classification. It is described as having a great tendency to spread, a dusky red blush forms around the sore, the edges are sharp cut, the surface is grayish, and is attended with irritative fever. This is usually found in persons of a cachectic constitution, and is allied to gangrene, the vitality of the part and the constitution being much reduced. The treatment should consist of a nourishing diet, the use of quinine and iron, hydrastin and other ve-

getable tonics should be given freely, and when the constitutional powers are greatly reduced, the strongest diffusible stimulants should be used, capsicum, xanthoxilin and carbonate of ammonia. The brandy and egg mixture of the Eclectic Dispensatory will be excellent. The local applications should be such as will cause a slough. Sulphate of zinc, and the chloride should be applied on lint, followed with slippery elm and charcoal poultices, if the tendency to gangrene be marked. The carrot and spikenard poultice will likewise answer a good purpose.

The specific ulcer has characteristics dependent upon its cause, which may be scrofula, fungus, or syphilis. The particulars of each should be described under the heads of their respective causes.

The varicose ulcer takes its name from its cause, which is a varicose condition of the veins in the circumjacent tissues. The skin gradually undergoes degeneration, becomes of a brownish or purple colour, and the veins in the part become enlarged and tortuous. Near to one of these congested spots the ulcer forms by breaking down of the softened, and partially disintegrated tissue, forming a sore in which the surface is sometimes irritable, sloughing or indolent. In case the ulcer penetrate one of the tortuous veins, it gives rise to hemorrhage, which sometimes proves alarming. The recumbent posture, elevating the limb, and compression of the part by lint and rollers will speedily arrest the hemorrhage. The causes of this condition of the veins are various. Phlebitis, by destroying the valves, will produce it. Pressure upon the ascending cava—or upon the femoral or saphenous veins, or a want of tonicity in the parietes of the veins on account of general debility—all these frequently are the direct causes. *Treatment:*—The indications are to remove the cause, if possible. The general circulation should be stimulated, the liver should be excited, if portal congestion be the cause. The heart should receive attention if it be diseased. Capillary circulation throughout the body should



be increased by baths, and stimulants and tonics. To the affected part, astringents and pressure should be applied. The limb should be elevated, and a strong solution of extract of quercus mixed with French brandy used for a wash. The patient should wear a bandage applied from the toes to the knee, or even above, if the veins be distended. An elastic, laced stocking will accomplish the same object. In difficult cases some surgeons recommend passing a ligature under the vein adjacent to the ulcer, then tying it so as to cause it to slough. Care should be taken, in performing this operation, not to pierce the vein. The same object may be attained by means of the application of caustic to the vein, thus causing an eschar and slough, by which the vessel is occluded. Other remedies may be beneficially used to increase capillary circulation in the parts. Tincture of myrrh and capsicin, kino, catechu, marsh rosemary, and the various astringent remedies will fulfil this indication. The tannic and gallic acids, containing the essential elements of astringents, can be beneficially used in solution as directed by the Eclectic Dispensatory.

The hemorrhagic ulcer is a sub-variety, known by a dark purple sore, occurring in females, from amenorrhœa, and consequently tending to bleed most at the menstrual periods, or at those times at which the female should menstruate. Its cause being constitutional, the treatment should consist of the use of tonics and stimulants. Xanthoxylin, macrotin, oil savin, sulphate iron, caulophylin, with hip-baths, and nourishing diet, and occasional purges, containing a portion of aloes, will be effectual in restoring the catamenia. The local treatment is comparatively unimportant, and should generally be the same as that recommended for the irritable ulcer. The general principles in the treatment of ulcers of every variety are to restore the action of the organs of digestion and assimilation, and the circulation of the blood, so that their treatment should be constitutional to a great extent. Nothing can be of permanent benefit unless the ge-



neral system is in a proper condition to furnish the healing material. The local treatment is such as will aid nature in hastening on the formation of a slough, and enabling the system to cure the ulcer quicker than it would do unaided. Undoubtedly, by means of rest, the elevated position, and proper diet, and the judicious use of water-dressing, the majority of ulcers can be cured; and, indeed, in many cases these are almost the only means that can be brought to bear upon patients on account of prejudice, or want of faith in medicines. Dr. Chapman, of London, speaks very favourably of these water-dressings, which are valuable when the surgeon can be in constant attendance, and have the entire control of the patient. But unfortunately this is seldom the case in general practice, and it therefore becomes all the more necessary to use medicines, and other means not hydropathic, in their treatment. When serofula complicates the ulcer—the ampelopsin—serofularia Marilandica, phytolaccin, and the iodide of potassium, and compound syrup of stillingia, will be the best remedies. If the ulcer arise from syphilis, the treatment should consist of stillingia, iodide of potassium, phytolaccin, and iridin, with a generous diet. The muriated tincture of iron will then form a useful local application.

#### ANATOMY OF INGUINAL AND FEMORAL HERNIA.

The bowels are protected by five pairs of muscles and their tendons. They consist of the obliquus externus, internus, the transversalis, the rectus, and the pyramidalis. The external oblique arises from the eight inferior ribs; and after passing over the abdomen terminate in an expanded tendon, which splits into two tendons, leaving a space for the passage of the spermatic cord of the male, and the round ligament of the uterus in the female. The upper column becomes attached to the symphysis pubis; the lower column passes under the spermatic cord, and is fitted to the spinous process of the pubis; a process of tendon called

Gimbernat's ligament passes down, and is inserted into the linea ilio-pectinea. The superficial fascia covers the tendon of the external oblique. Behind the tendon of the external oblique the lower fibres of the obliquus internus take their course, and after passing over the spermatic cord, terminate in a tendon, which is inserted into the symphysis pubis. Between these fascia the spermatic cord passes down to the testicles. The cone is composed of arteries, veins, nerves, absorbents, vas deferens, a membranous sheath, and the cremaster muscle. The opening containing this cord is called the inguinal canal, and is composed of the tendon of the transversalis muscle, and the fascia transversalis. The only artery immediately connected with the anatomy of hernia, is the epigastric. It arises from the internal iliac behind Poupart's ligament. It passes upwards and inwards, and behind the fascia transversalis, and anastomoses with the internal mammary artery.

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### HERNIA.\*

A protrusion of any viscus from its proper cavity, is denominated a hernia.

The protruded parts are generally contained in a bag, formed by the membrane with which the cavity is naturally lined. Several parts of the body afford examples of this disease. A deficiency in the bones of the head will sometimes allow the protrusion of a portion of the brain and its membranes, from the inner to the outer side of the skull, forming a hernia of this organ. An imperfect state of the intercostal muscles may permit a part of the lung, with its pleura, to form an external tumour or hernia of the contents of the chest. But the disease most frequently occurs about the cavity of the abdomen; and on this account, as

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\* Cooper on Hernia.

well as from its superior importance in a surgical point of view, I shall confine my observations to this species, with its several varieties. Many reasons may be assigned for the very frequent occurrence of protrusions from the abdomen.

First. The viscera of this cavity are numerous, some of them very moveable, and others loosely connected by peritoneal attachments with the surrounding parts, and they are constantly exposed to changes of size and relative situation, from sudden or gradual distention.

Secondly. The parietes of the abdomen are composed of muscles, which, when in action, contract the dimensions of this cavity, compress the bowels, and thus have a tendency to force them from their natural position.

Thirdly. For the passages of the vessels and nerves, these muscles and their tendons have various apertures, which, naturally, only large enough for that purpose, often become so much relaxed as to allow the viscera themselves to protrude.

Lastly. The muscles are sometimes imperfectly formed, and the viscera escape through unnatural apertures. The following are the situations in which abdominal hernia is found:—

First. It appears at the abdominal rings, generally passing in the same course with the spermatic cords in the male, and the round ligaments of the uterus in the female; thence it is continued down into the scrotum in the one sex, and the labia pudenda in the other. This hernia of the abdominal ring is known to surgeons under the various appellations of inguinal hernia, bubonocoele, scrotal hernia, and oscheocoele.

Secondly. A hernia also penetrates under Poupart's ligaments, forming a tumour at the inner and upper part of the thigh. In this situation it is called femoral hernia, crural hernia, or meroecoele.

Thirdly. Another species is formed at the navel, by a

protrusion through the opening which was formed in the fœtus for the passage of the umbilical cord. This has received the name of umbilical hernia, or exomphalos.

Fourthly. Similar protrusions take place through the tendinous covering of the anterior part of the abdomen. The linea alba and semilunaris are perforated to transmit vessels passing to the common integument; when these holes are either originally of an unusual size, or enlarged during a relaxed state of body, herniæ will occasionally be formed in them, which are then called ventral.

Fifthly. Another part at which hernia sometimes appears, is in the foramen ovale of the pelvis; it then takes the name of the aperture, and is termed hernia foraminis ovalis, ob-turatorea, or hernia thyroidea.

Sixthly. Sometimes, though rarely, a hernia is produced at the ischiatic nerve, under the glutæi muscles. This takes the name of the part, and is termed hernia of the ischiatic notch, or ischiatocele.

Seventhly. Sometimes, though rarely, a hernia passes between the bladder and rectum in the male, and between the rectum and uterus in the female, appearing in the perineum. It is then called hernia perinei.

That species of hernia, which from its frequently appearing at the time of birth, is called congenital, takes the same course through the abdominal rings as the inguinal hernia; but instead of passing down upon the fore part of the spermatic process, it descends within the tunica vaginalis testis, and ought therefore to be named the hernia tunicæ vaginalis.

The names that have been given to different kinds of hernia, have been derived from their contents, as well as their situations. If they contain only omentum, they are called omental hernia, or epiplocele; if only intestine, intestinal hernia, or enterocele; if both omentum and intestine, entero-epiplocele,—if the stomach be contained in the tumour, gastrocele; if the liver, hepatocele; if the bladder,

cystocele, or hernia cystica; if the uterus, hysteroccele; and the same of others; for excepting the duodenum and pancreas, which are too closely connected with the spine easily to change their situation, all the different abdominal viscera have occasionally been found to form the contents of a hernial tumour. However, the viscera usually met with in hernia are the omentum and the ilium; the next in frequency is the colon, then the cæcum, and lastly, the jejunum; sometimes the appendix cæci is the only part of the intestine found in the hernial sac.

Of the inguinal hernia there are four varieties:—The oblique, or that which takes the course of the spermatic cord in the male, and the round ligament of the uterus in the female; the direct, which passes immediately from the abdomen through the external abdominal ring, so that its direction from the scrotum into the abdomen is not attended with that obliquity which characterizes the former; the congenital, in which the protruded viscus is found within the cavity of the tunica vaginalis; the encysted hernia of the tunica vaginalis, in which an additional membranous sac is formed within that peritoneal sheath.

The oblique makes its first appearance at the internal ring in the form of a small tumour, situated at about an inch and a half to the outer side of the external abdominal ring, in a line extending from the pubes to the anterior superior spinous process of the ilium. If its progress be uninterrupted, it proceeds gradually obliquely downwards and inwards in the direction of the inguinal canal as far as the external ring. As long as it remains within the canal, its existence is often not suspected by the patient, because it requires a careful examination to detect it; but to a surgeon acquainted with the natural feel and appearance of the parts, it is sufficiently obvious. The length of the swelling above the ring will be found as the part of the spermatic cord included between the upper opening and the abdominal ring; that is, about an inch and a half in the adult subject.

## STRANGULATED HERNIA.

Hernia is said to be strangulated when the omentum that protrudes is so closely confined that it cannot be returned into the abdomen without a surgical operation, and where the circulation is cut off, and gangrene or mortification is liable to ensue. Strangulation occurs as the result of congestion of the protruded part, and the spasmodic constriction of the walls of the canal through which the viscus passes.

## SYMPTOMS.

When the hernia becomes strangulated, the tumour will be found increased in size, hard and tense, and, in coughing, the impulse, which is always felt in reducible hernia, is no longer perceived. The patient becomes restless, and there will be obstinate constipation of the bowels. The pulse will be full and hard, the skin hot and pungent, the tumour will assume a dark purple colour, and be extremely painful, and if allowed to remain, nausea and vomiting will ensue, together with great pain over the entire abdomen, indicating active peritonitis. In the course of a day or two, if the patient be not relieved, the pulse will suddenly become feeble, the surface will be covered with cold, clammy sweat, and dark, effete matter will be ejected from the stomach, passed from the bowels, and death will ensue.

## OPERATION.

The patient should be placed upon a table, and should inhale pure ether, until complete anæsthesia is produced. The bladder should be emptied, and an incision should be made on the neck of the sac, of sufficient length to give the surgeon plenty of room to divide the stricture. A piece of skin should be grasped with the fingers, and having the back of the scalpel nearly in contact with the abdomen, the incision should be made by an upward motion. In the next place, the forceps should be made to grasp the fascia, and by a similar upward motion it should be divided. If

bleeding should occur, the vessels should be secured by the ligature.

Much caution will be required in dividing the cellular tissue which covers the sac. This should be done by pinching up a small portion with the forceps, making a small incision, and introducing a director, and laying it open upon this. If by the first attempt the sac should not be reached, another portion should be divided as before, and so on until the sac is exposed, which may always be known by its shining appearance and hard feel. The sac being exposed, it should now be opened by raising it up with the forceps, (taking care that no portion of the intestine be involved,) making a very small opening with the point of the bistoury. A broad director should now be introduced, and upon it the sac should be sufficiently slit up to allow its contents to be examined. The sac being opened, the next point is to divide the stricture. This should be done by introducing the finger, and gradually carrying it between the stricture and the intestine; then a blunt-pointed bistoury made to pass along sidewise upon it until it is passed under the stricture, when the edge of the knife should be turned up, and by a gentle, sawing motion, the stricture is divided. When this is accomplished, the omentum should be examined, and, if not affected with gangrene, should be gently pushed back into the abdomen. The edges of the incision should be brought in contact by means of adhesive strips, the patient placed in bed, and the entire abdomen rubbed with equal parts of water and whisky. If the bowels should not move in the course of twenty-four hours, a small dose of neutralizing mixture should be administered.

If symptoms of peritonitis occur, they should be controlled by aconite, veratrum, &c., as directed under that head.

### REDUCIBLE HERNIA.

In all cases an attempt should be made to reduce the hernia before resorting to an operation. Every possible



effort should be made to reduce the hernia by means of taxis. This should be commenced by giving from five to ten drops of the concentrated tincture of gelsemin, repeated every ten or fifteen minutes until the eyelids become heavy, which indicates the constitutional influence of the drug. Then give a strong lobelia injection, after which the legs should be flexed upon the abdomen. The tumour should then be gently grasped with the left hand, and with a finger of the right hand the intestine should be gradually restored to the abdomen. If this cannot be done, the hips should be elevated, and the parts should be fomented with a strong infusion of lobelia, after which the taxis should be again attempted.

If these efforts are not sufficient to reduce the hernia, the bowels should be injected with warm water, and the stomach thoroughly evacuated by lobelia. I once reduced strangulated hernia, when all other efforts had failed, by suddenly elevating the patient by the feet. A plaster of belladonna is used beneficially sometimes in these cases. I have also known electricity to be used with good effect. But if all these efforts fail, an operation should be resorted to, as already described.

### RADICAL CURE OF HERNIA.

Various methods have been adopted for this purpose. The following method I have found effectual, not only in curing recent cases, but those of long standing. In the first place, after reducing the hernia, it should be kept in its place by means of a truss properly adjusted to the upper portion of the inguinal ring. Previously to applying the truss, a small strip of soft leather covered with the irritating plaster should be applied the whole length of the inguinal canal. This plaster should be renewed as often as once or twice a week, and continued until free suppuration ensues. After continuing the irritating plaster for two or three weeks

it may be removed, and the common strengthening plaster applied. If the first application of the irritating plaster does not produce sufficient inflammation to contract the inguinal canal, and prevent hernia, it should be repeated. This method I have found very successful in curing many bad cases of hernia.

## HYDROCELE, OR DROPSY OF THE SCROTUM.

Dropsy of the scrotum is a collection of water in the membrane which surrounds the testicles. There are a variety of causes, such as rheumatism, gout, scrofula, &c. In some cases the water increases to such an extent, that the tumour becomes very large.

It can easily be distinguished from disease of the testicles, by discovering whether it is opaque or transparent. This may be done by holding a lighted lamp on the opposite side.

### TREATMENT.

Give the patient a free purge of anti-bilious physic and cream of tartar, after which give the following syrup:—Take queen of the meadow, one ounce; colt's foot, or asarum Canadense, one-fourth of a pound; yellow parilla, one-fourth of a pound. Make one quart of syrup, and add two drams of iodide of potassium. Let the patient take one tablespoonful three times a day. Pass a strong current of electricity through the tumour four or five times a day, also give a free purge of podophyllin and cream of tartar three or four times a week. If this should not succeed, a suspensory bandage may be worn; or the water may be drawn off by means of a trochar, and the scrotum injected with the wine tincture of hemlock bark, to prevent return of the infusion. Also give one or two grains of apocynin two or three times a day.

## GRAVEL OR STONE IN THE BLADDER.

Stone in the bladder may be composed of lithic acid, lithate of ammonia, phosphate of lime, triple phosphate of ammonia and magnesia, or, of the oxalate of lime.

*Symptoms.*—Irritability of the bladder, frequent desire to urinate, sudden stoppage of the stream during micturition, pain in the neck of the bladder—most severe after urinating,—a constant desire and effort on the part of the patient to relieve the pain by pulling at the end of the penis. The above symptoms, although nearly always present, are not to be relied on unless the existence of stone be demonstrated by means of a sound into the bladder. This can be done by placing the patient on his back, and introducing the sound when the bladder is free from irritation, and, if there be stone, the sound will be distinctly heard as the instrument strikes it.

*Treatment.*—If stone be present, attempts may be made to dissolve it by allowing the patient to drink liberally of a strong decoction of qucen of the meadow, in combination with alkalies, or acids, according to the chemical nature of the calculi. If this cannot be done, it should be removed by lithotrity or lithotomy, as directed by Dr. Druitt.

## LITHOTRITY.

“Lithotrity is an operation for grinding or crushing stone in the bladder into fragments of so small a size, that they may be readily expelled through the urethra.

The operation is performed as follows: The patient is placed on a couch with his pelvis well raised, and his shoulders comfortably supported; the bladder is then emptied, and five or six ounces of warm water injected with a proper catheter and syringe. The injection should be accomplished with the greatest possible slowness and gentleness. The instrument warmed and oiled, is now to be most gently introduced; and it must be passed fully into the bladder. The next step is to seize the stone.

But for this purpose, as is well and forcibly stated by Sir B. Brodie and Mr. Skey, it is not justifiable to move the instrument about in the bladder, or to use it as a searcher; on the contrary, as Mr. Skey says, the stone must be brought to the instrument. For this purpose, the blades having been opened,—in doing which the same surgeon observes, the female blade should be pushed forwards to the same extent to which the male blade is drawn back,—the blades should be pressed downwards towards the rectum, by raising the handle; so that the bladder may assume a conical form with the apex downwards. Into this apex the stone will most probably fall; if not, a slight shake given to the patient's pelvis will probably make it do so.

When the stone is fairly grasped, the screw or other mechanical force employed should be made to crush it; and here the first operation should generally end, for the surgeon must adopt *festina lente* for his motto, and must not be eager to do too much at one sitting. At the close of the operation, it must be seen that the blades are entirely closed, and not choked by detritus; then the instrument is withdrawn. The subsequent parts of the treatment are these. First, all pain, which is often severe, must be allayed by opium, administered by the mouth, or in the form of enema or suppository. Hip baths, barley water and other demulcent drinks, and alkaline medicines may be used with the same intention. *Secondly*, the operation must be repeated at intervals, till every fragment is crushed and expelled. In favourable cases there is some degree of scalding and pain, which soon passes off, and allows the operation to be repeated in three or four days. In less favourable cases, there may be severe pain and spasm of the bladder, requiring an interval of six or eight days.

The *third* point is the getting rid through the urethra of the detritus and fragments. After each operation, and especially after the first, the patient should not attempt to

make water for some hours; and should remain quietly on his back for two or three days. Probably he will not be able to make water, from the injury which the neck of the bladder has received, and will require the catheter. After subsequent operations, the removal of the detritus may be promoted by injecting the bladder with warm water through a catheter with a large eye; or the catheter forceps may be used. It may be expedient to make the patient pass water on his knees, especially if the prostate is enlarged. If a fragment become impacted in the urethra and cause retention, it must either be gently pushed back into the bladder, or extracted by the urethra forceps, or by probe or hook; or crushed in the urethra; or lastly, be cut down upon from the perinæum.

*Contra-indications.*—The circumstances which render the operation of lithotrity difficult or dangerous relate, 1st, to the *urethra*; for if this be naturally small, as in children, or strictured by disease, and incapable of being dilated, so as to admit the necessary instruments, lithotomy is to be preferred to lithotrity. 2d. Uneonquerable irritability and contractility of the *bladder*—especially if already thickened by disease. 3d. Very great enlargement of the *prostate*, and especially of the third lobe, which hinders the manipulation of the instrument and the escape of detritus. 4. Great size of the stone, such as a greater diameter than two inches, especially if accompanied with great hardness, and if there are more stones in number than two. If these be the contra-indications, it will be readily inferred that the

*Cases in which Lithotrity may be beneficially resorted to* are those in which, 1st, the patient is an adult, with a full-sized *urethra*; 2d. In which the *prostate* is not enlarged; or, at all events, in which, if the prostate be slightly enlarged, the stone is small, and other circumstances favourable; 3d. In which the *bladder* is free from thickening, ex-

treme irritability, and *purulent* catarrh. Simple mucous catarrh is no contra-indication—in fact, being caused by the presence of stone, it will be relieved by that which removes its cause. Lastly, in which the stone is single, or in which, at least, there are not more than two, not large, nor very hard. The oxalic are the hardest and most intractable of all.

This operation may be followed by rigours and great constitutional disturbance and debility, or by inflammation and abscess in the pelvic areolar tissue, which may prove fatal. But Sir B. Brodie gives it as his opinion that, if prudently and carefully performed, with a due attention to minute circumstances, it is liable to smaller objections than almost any other of the capital operations in surgery. It must be observed, in conclusion, that the benefits of lithotritry are most fully evinced when patients apply for relief at the earliest possible period after the descent of the stone into the bladder.

#### LITHOTOMY.

*Definition.*—The best definition is the homely English phrase—“*Cutting for the stone.*”

The *indications* for this operation may be defined to be, the presence of a stone in the bladder, which it is not judged expedient to remove by lithotritry.

The only *contra-indication* is the presence of such serious organic disease, and especially of the kidneys or lungs, as would render the patient likely to sink from the immediate effects of the operation. But the surgeon is not justified in withholding a means of relief, if the only one, and if the patient desire it, merely out of regard to his own reputation for success in operations.

The *Preparatory Treatment* consists in the use of such measures described in the last section for improving the health and allaying all irritability about the urinary organs.

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There are four methods in which lithotomy may be performed, viz.: the lateral operation—the bilateral—the recto-vesical, and the high operation, to which may be added Mr. Allarton's. The lateral is that which common consent has decided to be the best, except in a few rare instances. There are an infinity of minute variations in the manner of performing it, and in the instruments employed by different surgeons. In the following pages the author proposes to describe chiefly the method employed by Mr. Fergusson, which he has had many opportunities of witnessing at the King's College Hospital.

1. LATERAL OPERATION. (FIG. 65.)

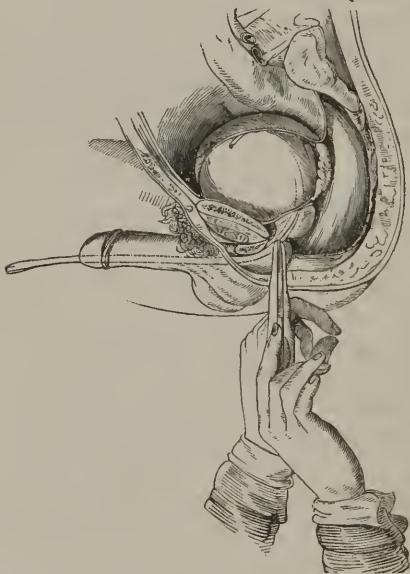


Fig. 65.

The instruments needed are the following:—A sharp-pointed knife; a straight probe-pointed knife, if necessary to enlarge the internal incision; a curved staff, deeply



grooved; it should be large, the groove deep and not extending more than half way up the straight part of the instrument. Mr. Fergusson's staff has the groove on the left side; forceps of various sizes, and scoops for extracting the stone; and a sound, to make sure that the bladder is empty after the operation; needles and tenacula; canulæ, and a stone cutter may be at hand in case of need.

It is advisable that the bowels should be cleared in the morning with a simple enema. The bladder should be moderately full; and if the patient has recently emptied it, a few ounces of water may be injected.

The surgeon must take care that there is a good, firm table for the operation, about two feet and a half high. When the time is come the patient should lie down on this, and be put under the influence of chloroform; then the staff should be introduced, and be made to act as a sound, to make clear the existence of the stone to the operator and his assistant. If the staff does not serve this purpose, a sound must be used; for this is a point about which there should be no mistake.

The next point is to place the patient in a convenient posture. He should be placed on his back, with his shoulders resting in the lap of an assistant, who sits astride behind him. Then, in order to expose the perinæum thoroughly, he must be made to raise and separate his thighs, and to grasp the outside of each foot with the hand of the same side, and the hand and foot are to be firmly bound together by a broad garter. The buttocks should be brought to the edge of the table; mean while, if not done before, the perinæum should be shaved. "The surgeon may," says Mr. Fergusson, "pass his left forefinger well oiled into the rectum, to ascertain the size of the prostate, and its depth from the surface; he should also explore with his finger the surface of the perinæum, and the position of the rami and tuberosities of the ischia.

Every thing being now prepared, an assistant on each

side holding the thighs firmly asunder—another being at hand to give the surgeon his instruments—and a fourth stationed on the left side, holding the staff perpendicularly, and well hooked against the symphysis pubis—in which position he is to hold it steadily from first to last, and keeping up the scrotum out of the way, the surgeon places the fingers of the left hand on the right buttock, and with the thumb fixes the integuments of the perinæum, taking care, however, not to draw them up too much. Then he commences by a free division of the skin, with more or less of the subjacent tissues; entering his knife just on the left side of the raphe, about an inch and three quarters in front of the anus, and cutting downwards with a sawing motion, to midway between the anus and the tuberosity of the left ischium. “The blade of the knife,” says Mr. Fergusson, “should next be run along the surface of the exposed fat and cellular tissue, and then the forefinger of the left hand be thrust into the wound, about its middle, and directed upwards and forwards between the left erector and accelerator muscles.” If any muscular fibres of the transversus or other tissue offers resistance, it may be divided by a touch with the knife; but usually they give way before the finger, which reaches and feels the groove of the staff in the membranous part of the urethra. This is the first stage of the operation. The left forefinger nail being now well fixed in the groove of the staff, the knife is slipped in over it, with its flat surface nearly horizontal; its point is made to pierce the tissues covering the staff, and to enter the groove, and to slide along the groove towards the bladder, dividing the membranous part of the urethra, and the edge of the prostate. This completes what the French would call the second *temp.* Now the knife being withdrawn, the left forefinger is generally insinuated along the staff into the bladder with a rotatory kind of motion, dilating the parts as it enters, and is made to feel for the stone. In the next place, the assistant removes the staff, and the surgeon cautiously

introduces the forceps over the finger into the bladder; the finger being withdrawn as the instrument enters. And, at this moment, Mr. Fergusson, with admirable dexterity, opens the blades, and catches the stone as it is brought within their jaws by the gush of urine that escapes. For it must be observed, that so closely does the finger follow the knife into the bladder, that no urine escapes till the finger is withdrawn.

If, however, the stone is not caught in this ready way, the forceps must be closed and brought into contact with it—then the blades be opened over it, and be made to grasp it; if seized awkwardly, it is relinquished and seized again—then it is extracted by slow, cautious, undulating movements. The forceps should be held with the convexity of one blade upwards, and of the other downwards; and the endeavour should be to make the parts gradually yield and dilate, not to tear them.

The *general maxims* to be borne in mind, during the performance of this operation, are—1st, to make a free external incision, and to bring it low enough down, so that the urine may subsequently escape freely without infiltrating the cellular tissue; 2d, not to cut deeply too high up, nor to open the urethra too much in front, for fear of dividing too much of the urethra, and wounding the artery of the bulb; 3d, not to wound the rectum, or pudic artery, by carrying the incisions too low, or cutting too much inwards or outwards; the left forefinger should protect the rectum throughout; 4th, not to cut *through* the prostate.

It will be noticed that after the first incision, the use of the knife is very little limited indeed; yet, if the stone is very large, the prostate very hard, or if any muscular or other tissues resist the forefinger as it passes in, they may be touched with the edge of the blunt-pointed bistoury. In fact, the right side of the gland may be divided, equally with the left. Also, after the stone has been grasped, the same may be done if needful.

The usual *pons* of young operators, is the difficulty of getting the finger and forceps into the bladder, and the propensity to let them slip between the bladder and rectum. In seizing the stone, if not caught at the first gush of urine, care must be taken not to grip the bladder with it. The forceps should have long blades, curved so as to retain the stone without undue pressure. They may be lined with linen, which affords a firmer hold, and takes up less room, and is less likely to crush the stone than the metallic teeth usually employed.

The extraction of the stone resembles a problem in obstetrics. As the os uteri must not be allowed to come down before the child's head, and get jammed between it and the pubes, so the surgeon must not drag down the prostate in front of the stone, and jam it against the ramus of the ischium. "It may be useful," says Mr. Fergusson, "to push it back over the forceps with the left forefinger." Moreover, the extracting force must be directed downwards, where the interval between the bones is the largest.

If the stone is so large that it will not pass, there is the choice of crushing it, by a huge lithotrite, or by a screw instrument invented by Haynes Walton; or of performing the high operation. A surgeon finding himself unable to extract a stone by the perinæum, immediately cut into the bladder above the pubes, and extracted it that way. The patient recovered.

If the stone is adherent, or encysted, the finger nail and the scoop must be employed to detach it. If pouched behind the prostate, a finger in the rectum may lift it within reach of the forceps. If grasped by the bladder behind the pubes, it may be brought down by injecting the bladder with warm water.

The *varieties of this operation* before alluded to are as follows:—Many surgeons direct the assistant to hold the staff so that it may project in the perinæum, and incline a

little to the left side of it, and, when they have opened the urethra, and are about to incise the neck of the bladder, they take its handle in their own left hand, and bring it down horizontally. Mr. Key preferred a straight staff. Again, there are great diversities in the manner of cutting into the bladder. Some use a *bistouri cache*, an instrument containing a blade that protrudes to a certain extent on touching a spring. Sir B. Brodie prefers a *beaked knife*, or, if the stone is very large, a double-edged knife, with a beak in the centre, so as to divide both sides of the prostate. When the bladder is opened, he directs the wound to be dilated by means of the *blunt gorget*, which distends the neck of the bladder, and splits cleanly through the prostate, without any risk of hemorrhage or mischief. Many surgeons open the bladder by means of the *cutting gorget*, the beak of which being put into the groove of the staff, held horizontally in the operator's left hand, it is pushed cautiously on, and made to cut its way into the bladder. If this instrument is employed, every precaution must be used to keep it in contact with the staff, and not to let it slip between the bladder and rectum—an accident that has been the death of not a few. The late Mr. Avery constructed a most ingenious instrument, by means of which a child might perform lithotomy. A staff introduced into the bladder contained machinery, through which, by turning a handle, a trochar was made to pierce the perinæum from within, thus making it impossible to miss the bladder. Lastly, there is a method which was occasionally employed by Cheselden, and which is still practised by a very experienced and successful lithotomist, Mr. C. Mayo, of Winchester. In this method, the operator, after making the usual external incisions, "cuts into the side of the prostate as far back as he can reach, and brings out the knife along the groove of the staff into the membranous part of the urethra," thus making the incision into the neck of the

bladder, from behind, forwards, instead of from before, backwards, as in the other varieties.

*After Treatment.*—The surgeon, especially if the stone has been crushed, or if there is reason to suspect more than one, makes certain by means of the sound, or by syringing the bladder, if requisite, that every fragment of the stone has been removed. Mr. Fergusson then introduces a suppository of morphia, and the patient is removed to his bed. The patient should lie on his back, with his shoulders elevated; a napkin should be applied to the perinæum to soak up the urine, and the bed be protected by oil-cloth. Some surgeons introduce a large gum elastic canula through the wound into the bladder for it to flow through for the first twenty-four hours. If not, the surgeon should introduce his finger, after a few hours, to clear the wound of coagula. Pain must be allayed by opium, the bowels be kept open with castor-oil, the wound be kept perfectly clean, the diet be nourishing, and then, in favourable cases, the urine begins to flow by the urethra in about one week, (sometimes in three or four days,) and the wound heals completely in four or five.

#### COMPLICATIONS.

1. Severe hemorrhage may proceed at the time of the operation, or after it, from the pudic or bulbous arteries, if wounded. If the bleeding orifice cannot be secured, it must be compressed as long as may be necessary with the finger. A general venous or arterial oozing must be checked by filling the wound firmly with lint or sponge—the tube being then indispensable—and by ice applied to the perinæum, or lower part of the abdomen. Care should be taken that blood does not accumulate in the bladder. This may be suspected if the patient is pale and exhausted, and must be combated by injections of cold water, to make the bladder contract. 2. Sloughing of the cellular tissue



from urinous infiltration—a frequent result of a hasty operation, and of too freely incising the neck of the bladder—is indicated by heat and pain about the neck of the bladder, heat of the skin and sleepiness, followed by a rapid, jerking, intermittent pulse, hiccup, the belly tympanitic, the countenance anxious, and other signs of irritation or typhoid fever. To be treated by wine, quinine and ammonia, by thoroughly opening the wound with the finger, and, if necessary, laying the wound into the rectum, so that the urine and fetid discharge may escape. 3. *Simple Peritonitis*: pain and tenderness extending from the bladder over the abdomen, must be treated as directed under the head of peritoncal inflammation. 4. *Pyæmia*.—See *Empyæmia*.

#### STONE IN WOMEN.

Stone in women is much less frequent than it is in men, and when a renal calculus reaches the bladder, it is much more easily voided. If, however, there is a calculus too large to escape, it must be removed.

1. The surgeon may employ *lithotrity*.

2. The orifice of the urethra may be simply dilated, which may be effected by *Weiss' female dilator*, slowly or quickly, as may be desired.

3. The bladder may be cut into from the vagina, or the orifice may be incised.

4. Incision may be combined with dilatation. The great evil is the almost certainty that more or less incontinence of urine will follow. Mr. Fergusson recommends that the dilatation should be effected very slowly by means of a metallic or some other dilator, till it is capable of admitting the forefinger, when forceps may be introduced to seize the stone. If this should not answer, and it seems necessary to make an incision, he recommends that the anterior half of the urethra—not its whole length into the bladder—should be divided to the extent of half an inch with a



probe-pointed bistoury, after which sufficient dilatation might be effected with the forefinger oiled. The outer part of the urethra, which is the most undilatable part of it, would be alone divided by this operation, and the neck of the bladder, unless very roughly used, would speedily acquire its tone and use. In this way the eminent surgeon just quoted has extracted a stone three inches in circumference, and the patient had the power of retaining her urine immediately afterwards.

#### MEDICAL TREATMENT.

The treatment of gravel should be governed by the nature of the case. If it be of an acid character, (which may be known by the urine turning blue litmus paper red,) lithontriptics, alkalies and diuretics should be given for the purpose of dissolving the stone and expelling it from the bladder or organ which contains it. For this purpose the following compound may be given:—Take queen of the meadow, pulv., one ounce; Indian hemp, two ounces; bicarb. of potassa or saleratus, one drachm; mix, make an infusion, and let the patient take one-half-teacupful three or four times a day. Also, inject a teacupful into the bladder once a day, and after it is evacuated, inject the bladder with warm flaxseed tea, to prevent irritation. For the purpose of facilitating the action of the diuretics, a podophyllin purge should be occasionally given. The patient should also be allowed to partake freely of vegetables, to prevent farther calcareous accumulations. If the calculi be alkaline in its chemical nature, (which may be known by the urine turning red litmus paper blue,) forty or fifty drops of nitro-muriatic or sulphuric acid may be added to the diuretic mixture instead of the saleratus, and administered as before. In addition to the above, I have used the *aralia hispida* or dwarf elder, the clivers, asparagus, horse-chestnut tree bark, the *asarum Canadense*, or eolt's foot, &c. In all cases the diuretics should be mixed with acids

or, alkalies, according to the chemical character of the deposit. Where these measures fail, the stone may be crushed in the bladder by means of an instrument called the lithon-  
triptor. It will then be expelled with the urine. The operation of lithotomy should be performed by none but the most experienced surgeons.

#### DISEASES OF THE BLADDER AND PROSTATE. CYSTITIS.

This disease, although rare, may be produced by various causes, such as wounds, gonorrhœa, the passage of instruments, irritation arising from applying blisters, &c.

The symptoms are, very great irritability in the bladder, pain and weight in the sides and lower part of the abdomen, &c. The urine is high-colored, frequently mixed with blood, mucus or pus.

Sometimes an attack of acute cystitis will terminate in the chronic form. When it terminates fatally, the symptoms will be of a nervous character, the pulse being rapid and weak, the tongue dry and dark, and the urine extremely offensive. After death the disease will be found to have changed from inflammation of the bladder to inflammation of the peritoneum, or the formation of abscess.

The chronic form of cystitis is commonly called the irritable bladder, the symptoms of which are similar to those of the acute form, although less severe. It continues generally for a long time, usually terminating in vesicular catarrh. This form mostly occurs in men, and frequently involves other diseases of the urinary organs.

The symptoms of *vesical* catarrh are constitutional debility and local irritation, with a frequent desire to pass water, which is usually mixed with a quantity of mucus. Should the urine be left to stand, it will divide into two parts, the lower being a thick, gummy mucus, and having the appearance of pus, while the upper portion remains clear. The chronic form of this disease is frequently

fatal, terminating, generally, with symptoms of typhoid fever.

On examination of the bladder, after death, the mucous membrane will be found very much thickened, the blood assuming a black colour in the veins, which are very much enlarged. Abscesses will also be found, while the mucous membrane lies in folds, which become thick and hard. As the disease advances, the organs become covered with sacs, which are of two kinds. In the first, the muscular and mucous coats are pushed outwards. In the second, or most frequent form, the mucous coat only forms a protrusion like hernia. Pus, mucus, and sandy substances are frequently found in these cysts.

Children of a scrofulous nature are occasionally affected with a peculiar form of chronic inflammation of the bladder. The child has frequent desires to make water, which occasions much pain, while the urine is exceedingly offensive. On sounding the bladder, it will be found rough, and containing mucus and a grinding or sandy matter. Sometimes the presence of worms is noticed.

Irritability of the bladder frequently occurs in women, and resembles stone so closely that it requires the most careful investigation to detect the difference. It appears to depend on a diseased and extremely sensitive state of the mucous membrane of the bladder and urethra. In some cases it appears to be dependent upon a disease of the genito-urinary organs, or an affection of the uterus. Pro-lapsus of the anterior wall of the vagina will also keep up this state.

#### TREATMENT.

In addition to the treatment that we have given in another portion of this work, for cystitis, populin and gelse-min, will be found valuable remedies. Populin exerts a most tonic and invigorating influence over the mucous membrane of the bladder, ureters and urethra. Hence,

in all cases where there is a weak or ulcerated condition of the mucous membrane of the bladder, from one to five grains of populin should be given three or four times a day, and if there be difficulty in voiding urine, with pain and burning sensation in the bladder, from one-eighth to one-fourth of a grain of gelsemin may be given with each dose of populin. If there are gravelly deposits in the bladder, one or two grains of eupatorin purpurin should be given two or three times a day. Warm irrigation of the bladder by means of a double canula may also prove beneficial where there is chronic inflammation. In diseases of the bladder of a chronic character, quinine, in combination with gelsemin or populin, may also prove beneficial.

#### TUMOURS OF THE BLADDER.

Fungous growths, or tumours of various shapes, are sometimes found in the bladder. They may occur at any time of life, and generally occasion a great deal of irritation in the organ, giving rise to retention of urine and some symptoms of stone. The growths are usually of a malignant character, and generally connected with like affections of the prostate, which, in women, may be closely allied to cancer of the uterus. These tumours are sometimes found covered with earthy concretions which somewhat resemble a calculus, but from which they may be recognised by the impossibility of passing the sound around them.

#### TREATMENT.

Benefit may be derived in these cases by the liberal use of iodide of ammonia in combination with compound syrup of stillingia, populin, &c. Where there is much pain and irritation connected with these affections, hyosciamin and gelsemin, given in small doses, will afford relief.

## PARALYSIS OF THE BLADDER.

If the body of the bladder be paralyzed, the patient will be affected with retention of urine, on account of the want of power in the organ to throw off the contents, not because of any obstacle to the flow of the urine. When paralysis occurs in the neck of the bladder, the urine passes away without the will of the patient.

Loss of tone in the body of the bladder, found in old persons, is simply occasioned by the want of muscular power, or as an effect of fever.

When occurring as the result of disease the urine escapes in a dribbling manner, while the patient finds it difficult to evacuate the bladder completely. Should entire retention occur, the bladder gradually enlarges, extending into the hypogastric region, often as high as the umbilicus. On examination, the lower portion of the abdomen will be found hard, rounded, pear-shaped, and elastic, having the feel of an enlarged uterus. On percussion a dull sound will be heard; while, by tapping above the pubes with the fingers, fluctuation may easily be perceived. When the bladder has become distended a quantity of urine constantly dribbles away, thus causing a large amount to pass off, but which does not relieve the retention. This affection is much more common in men than in women. The bladder sometimes increases to such a size as to lead to the supposition of the presence of a tumour,—the surgeon even resorting to tapping.

Retention of urine from paralysis may be distinguished from retention from obstruction, by noticing on the introduction of the catheter (the patient being placed on his back) that the instrument may be passed in very easily, and that the urine will pass off in an uninterrupted stream, instead of coming away in jets. In retention, also, the urine that escapes will be very high-coloured. Should the disease continue for a time, the consequences are likely to

prove fatal. Sub-acute inflammation occurs, followed by typhoid symptoms; and even if the retention is relieved, this state is liable to be present. The constant dribbling prevents the ulceration or bursting of the bladder, when the retention occurs from paralysis without any obstacle being present.

A weakness of the neck of the bladder will give rise to *incontinence of urine*, because there is not sufficient strength to retain the contents of that organ. It may result from various causes, being most frequent in children. It may occur in old people as the effect of debility, and is usually accompanied by retention. It is frequently dependent upon other affections, and sometimes upon nervousness. It is most liable to be found in children of scrofulous natures.

*Hysterical retention* and *incontinence* may be observed very often in girls of a nervous temperament. In hysterical retention the frequent use of the catheter is not advisable, as the patient is apt to depend entirely upon this for the removal of urine.

The bladder is frequently affected with severe pain when no disease can be discovered, even upon close examination; the pain will be neuralgic, or else depending upon the disease of some other organ not connected with it. It must be remembered, however, that irritating urine, or the secretion of urine, will, in some persons, occasion much suffering, and any disease coming in contact with the neck of the bladder will cause frequent desires to micturate.

We sometimes find the anterior wall of the bladder absent, together with a deficiency in the corresponding wall of the abdomen. In such cases the pressure of the abdominal viscera behind forces the posterior wall of the bladder forwards, causing the formation of a small, rounded tumour, the surface of which is red, and papillated, and apparently formed of mucous membrane.

## TREATMENT.

We have already given the treatment for retention of urine in another portion of the work. In paralysis of the bladder, strychnine, viburnin, and electricity, together with cystic tonics, such as populin and helonin, will be found most reliable remedies. I have succeeded in curing several cases of paralysis of the bladder by giving one-sixteenth of a grain of strychnine four or five times a day, and passing gentle currents of electricity through the bladder twice a day. This treatment should be followed by small doses of populin, viburnin, and helonin. The integrity of the system should be protected by general tonics, baths, and nutritious diet.

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## DISEASES OF THE PROSTATE.

The prostate may be the seat of various affections, as hypertrophy, the formation of calculi, acute and chronic inflammation, and scirrhus.

*Inflammation of the prostate* is generally the result of gonorrhœa, usually past the ages of twenty-five or thirty, and most frequently in men of middle age. The symptoms are, a frequent desire to urinate, which act is accompanied with severe pain, heat and weight in the perinæum. On introducing the finger into the rectum, the gland will be discovered very much increased in size, and extremely sensitive to the touch.

*Abscess of the prostate* may be caused by acute inflammation, or it may occur when very little inflammation precedes the affection. Idiopathic suppuration of the prostate rarely occurs.

When abscess is a consequence of inflammation of the prostate, it is accompanied by retention of urine, throbbing, and rigours. The abscess frequently gives way into the urethra, but it has been known to open externally into the



rectum or into the perinæum. Frequently, during the introduction of the catheter, the abscess will burst, the matter escaping through the instrument.

Retention may occur, in prostatitis, from the formation of pus, or from the swelling of the gland.

*Chronic, or sub-acute inflammation* of the prostate, frequently happens in persons of debilitated constitutions; or it may be the result of gonorrhœa, or local irritation. We find in this affection pain in the gland, heat, and tenderness, with a discharge of a thick, ropy mucus, frequently misjudged to be spermatorrhœa. Its continuance occasions a great deal of irritation of the neck of the bladder, together with debility of the generative organs.

*Hypertrophy of the Prostate.*—This disease is generally met with after the age of fifty—very rarely before. When the hair becomes gray, and when atheroma is found in the coats of the arteries, the size of the prostate is always enlarged; then the urethra becomes dilated, and the bladder thickened. It may be produced by any constant irritation of the urinary organs.

The enlargement of the prostate is chiefly dependent upon fatty degeneration of the gland; the degeneration of which may occupy the entire gland, or it may be confined to the lateral lobes. When the prostate is enlarged, the corresponding portion of the urethra also becomes larger than usual. The middle lobe of the prostate may be increased in size, while the lateral lobes retain their normal bulk. These enlargements render it very inconvenient in attempting to pass water, and may cause retention or incontinence. The symptoms of this disease are, a straining before evacuating the bladder, and, after an apparently full passage, an involuntary escape of water in small quantities. The patient is also much longer in evacuating the bladder than is usual. The urine becomes fetid, and mixed with mucus.

*Retention of urine* generally makes its appearance gradually. The patient will find much difficulty, some time

previously, in passing water, while the greater the effort he makes the more difficulty he experiences in accomplishing it. When the bladder becomes expanded with urine a small quantity will escape, until the parts about the neck of the prostate relax and allow it to pass.

#### TREATMENT.

Where there is acute inflammation of the prostate, the bowels should be opened with small doses of jalapin and cream of tartar; after which the patient should be put upon full doses of *veratrum viride*, and the impression maintained until the inflammation is subdued. During the treatment the patient should be kept quiet, and the penis, scrotum, and lower portion of the bowels, kept constantly packed in warm water. If the inflammation is of a chronic character, a small irritating plaster should be applied to the perinæum, and small doses of podophyllin and irisin should be given four or five times a day. The quantity of podophyllin given should be sufficient to maintain a mild alterative action on the system, but not sufficient to produce purging. If this should not succeed in subduing the inflammation, one or two warm sitz-baths should be given every day. Where there is hypertrophy of the gland, and there is irritable urine caused by an excess of acids, eupatorin purp. barosmin, in combination with alkalis, should be used freely. If there is retention of urine, the bladder should be evacuated by means of a catheter. The enlargement of the gland can usually be subdued with compound syrup of *stillingia* and iodide of ammonia. Take compound syrup of *stillingia*, six ounces; iodide of ammonia, one dram; mix, and let the patient take one teaspoonful five or six times a day. In some cases I have found benefit from painting the lower portion of the urethra and perinæum with the tincture of iodine. If the enlargement of the gland obstructs the urinary passage, sulphate of sanguinarina may be applied by means of Lallemand's porte-caustique; in other cases nitrate of silver may be applied with the same instru-

ment, and the prostatic portion of the urethra thoroughly cauterized. Phytolaccin, corydalin, iodide of potassium, sitz-baths, electricity, and iodine, have also been used in chronic enlargement of the prostate to advantage.

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## INJURIES AND DISEASES OF THE EYE.

### INFLAMMATION OF THE EYE GENERALLY.

The eye is a delicate and complex organ, composed of many different structures, and when diseased, each part requires to be considered separately. It is first necessary to distinguish between inflammation of the conjunctiva (improperly called *ophthalmia*) and inflammation of the eye-ball. The former may be caused by various disorders of the system; by the influence of the atmosphere; and by irritating applications. It may result in opacity of the cornea, but may be much relieved by local astringents. Its symptoms are extreme sensitiveness to bright lights, a burning or smarting pain, &c.

In inflammation of the eye-balls, the symptoms are a change in the colour of the iris; dimness of sight; the diminished power of the pupil, which is irregular; a neuralgic pain; and great intolerance of light. When the disease becomes chronic, the transparency of the cornea is lost, the vitreous humour takes a fluid form, the lens and its capsule become opaque, and paralysis of the iris occurs.

In acute inflammation the eyelids swell, scalding tears fill the eyes, the cornea becomes somewhat opaque, and the affection ends in suppuration.

### CAUSES.

Inflammation of the eye-ball may be either *traumatic*, or *idiopathic*. The first is caused by wounds, blows, and many other injuries. Persons who are intemperate, render themselves more liable to it. The symptoms are those

which have already been mentioned, added to which may be headache, fever, &c.

#### INJURIES.

In injuries of the eye-lids and eye-brows, sutures, if introduced, should be very small, while care should be taken that the healing is in no way irregular as to occasion distortion. Wounds of the forehead are sometimes followed by a loss of vision, which is probably the result of the shock given to the retina. Blows on the eye usually cause an unpleasant discolouration of the skin; and the slightest stroke on the eye-ball may cause a permanent injury to the eye, and even entire loss of sight. When blood is dispersed into the chambers, it may be absorbed in a short time, if the inflammation be controlled. The eye may be *ruptured* by any very severe blow. The greatest care is requisite in order to retain the sight, even although the contents may be only partially lost.

Dislocation of the crystalline lens may also occur as the result of injuries. If it be driven into the anterior chamber of the eye, and does not prove irritating, it may be left for nature to repair the injury. If it is liable to produce a permanent injury to the eye, it may be removed by extraction. This is almost always required when it lodges in the posterior chamber.

#### FOREIGN BODIES IN THE EYE.

Foreign bodies should be sought for by inverting the eye-lids and having the patient turn the eye in different directions. If the foreign body be found to adhere to the mucous membrane of the cornea or conjunctiva, it can usually be removed by wrapping a silk handkerchief around a silver probe and wiping it out. Or if it be a piece of steel, it may be removed by rubbing the end of a small cork on a piece of flannel, and applying it to the substance. On removing the cork the foreign substance will be found ad-

hering to it. A magnet has been used for the same purpose. If lime or mortar should get into the eye, it should be removed, and the eye washed or syringed with a weak solution of vinegar and water. If the eye should become inflamed, bathe it frequently in warm water, and use an ointment of equal parts of castor oil and laudanum. If a foreign substance should enter the anterior chamber of the eye, it should be removed, whenever it can be done, without evacuating the aqueous humor.

#### PROLAPSUS OF THE IRIS.

Prolapsus of the iris may occur as the result of penetrating wounds of the cornea. A reduction of it may be attempted by rubbing the eye-lids against the cornea so as to press on the prolapsed portion; and then exposing the eye to a strong light. If this is done immediately after the injury, it may prove successful.

#### DISEASES OF THE EYE-LIDS.

##### HORDEOLUM OR STYE.

Stye is a small painful pustule on the margin of the eyelid, having its origin in ciliary follicles. It can usually be cured by applying aquæ ammonia by means of a small steel needle, puncturing the tumour slightly. If this does not remove the inflammation it may be poulticed with slippery elm moistened in equal parts of water and tincture of lobelia.

##### OPHTHALMIA TARSI

Is an inflammation of the palpebral mucous membrane with a disordered condition of the Meibomian glands.

##### SYMPTOMS.

The eye-lids are stuck together by a dry mucus during sleep. If there be itching, burning and pain, the disease is usually acute, as these symptoms do not generally occur in the chronic form. It may lead to ulceration of the hair

follicles and loss of the lashes, and sometimes to thickening and inversion of the eye-lids.

#### TREATMENT.

In the treatment of this disease the first thing to be attended to is the constitution; and it is almost always connected with a serofulous or tuberculous diathesis. This condition should be corrected by baths, fresh air, nutritious diet, alnuin, frazerin, iron, cod liver oil, &c., and the following ointment used as a local application.

R. Muriate of hydrastin,..... grs. x.

Adeps,..... 3j.

M. ft. unguentum. Let it be applied by means of a camel's hair pencil, four or five times a day.

The eyes should be frequently bathed in a warm decoction of hydrastis, and if the lids are granulated, they may be touched once or twice a week with a weak solution of nitrate of silver.

#### SYPHILITIC ULCERS OF THE EYE-LID.

If syphilitic ulcers of the eye-lids occur, they may be distinguished from other ulcers by their rapid progress, by the patient being otherwise healthy, and by their copper-coloured appearance. They yield to the treatment for secondary syphilis. *Trichiasis* signifies the growing inward of the eye-lashes. It seems to depend on the thickening of the fibro-cellular tissue of the eye-lids. For the cure of this disease Dr. Walton recommends an excision of a portion of the lid so as to give it an outward turn. The practice of extracting the lashes has also been resorted to with some success.

*Entropion* implies inversion of the eyelids, to cure which an incision may be made along the edge of the tarsus, extending from one angle of the lid to the other. A second incision parallel with it should be made about four or five lines from it, and joining it at its extremities. The elliptical piece should be elevated at the end by forceps, and

dissected out, down to the cartilage. The wound should be closed by sutures and cold water dressings applied.

*Lagophthalmos* signifies inability to close the palpebræ.

*Ptoxis* signifies a falling of the upper eyelid with inability to raise it. Both of these affections are usually produced by palsy, and are precursors of apoplexy, great debility and extensive disorder of the nervous system.

*Treatment*.—If they occur suddenly, the bowels should be opened by an active cathartic, such as jalapin and antibilious physic, after which the following compound should be given.

R.—Strychnin,.....gr. j.  
 Ferri hypophosphite,.....3 ss.  
 Sulphate quinine,....grs. x.  
 M.—Ft. pulvis no. xv. Sig., one every two hours.

After these powders, tonics, chalybeates, mild aperients, and frequent baths will usually complete the cure. If the disease should prove obstinate, the powders may be repeated and electricity applied.

*Encyblepharon*, union of the edges of the lids cured by incision.

*Symblepharon*, a union of the lid to the globe, cured by dissecting the lid from the globe.

*Tumors of the Eyelids* may be of many varieties, such as warts, enlarged cutaneous follicles, cysts of hydatids, &c. They may be removed by extraction.

*Exophthalmia* signifies a dryness of the eyes from a deficiency of tears, cured by glycerine and mild tincture of capsicum.

*Epiphora* signifies a redundancy of tears. It usually depends upon foreign substances in the eyes, or upon a scrofulous or hysterical constitution, cured by removing the cause.

*Closure of the Puncto-Lachrymalia*, when caused by inflammation, is of short duration. If permanent, it may be remedied by slitting up the canal to the mucous surface.



*Fistula Lachrymalis* signifies a fistulous opening at the inner corner of the eye communicating with the lachrymal sac.

*Treatment.*—The treatment should consist in first subduing the inflammation by local and constitutional treatment, and then introducing the style by puncturing the internal portion of the sac a little below the functum.

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### DISEASES OF THE CORNEA.

In *Acute Inflammation of the Cornea*, (acute corneitis,) resulting from neglected injury, the part becomes red and opake, with ulceration or suppuration between the layers, or abscess of the anterior chamber following.

In *Scrofulous Corneitis*, the cornea is red, opake, and very prominent, with the redness extending to the sclerotic. The retina and iris have also a tendency to inflammation.

*Opacity* of the cornea is of two kinds—1st. That resulting from adhesive inflammation, and that produced by inflammation, resulting from the effusion of fibrin between its layers, and from the effects of scrofulous ulcers, which is generally curable. This is called *nebula*, when of a slight character, but, when more dense, *albugo*. 2d. *Leucoma*, which is a dense opacity, resulting from a cicatrix of the cornea. It may be partially removed if of recent origin, but is irremediable if of long standing, and may become the seat of calcareous degeneration, requiring removal because of irritation to the eye-lids. Some cases of opacity seem to be very near the surface of the cornea, perhaps upon the anterior elastic lamina. Those thus found are often very opake, and are sometimes considered more serious than they really are. A lens, or the point of a needle, will usually reveal their true character.

*Onyx* signifies a suppuration between the layers of the cornea, resulting from acute ophthalmia. It is thus named from the resemblance it bears to the white spot at the root of the finger-nail.

## TREATMENT.

Acute corneitis should be treated with podophyllin, jalapin, veratrin, blisters behind the ear and nape of the neck, low diet, and cold packs to the eye. The chronic form should be treated with iron, *genuine* cod-liver oil, and tonics. *Opacity of the cornea* may be removed by giving menisperm, iris, muriate of ammonia, and a weak decoction of capsicum, applied to the cornea by means of a camel's hair pencil.

*Onyx* usually disappears by giving small doses of podophyllin and diaphoretic powders.

*Ulcers of the Cornea* can be cured by giving the patient tonics and touching the ulcer two or three times a day with hydrastin moistened with glycerine by means of a camel's hair brush.

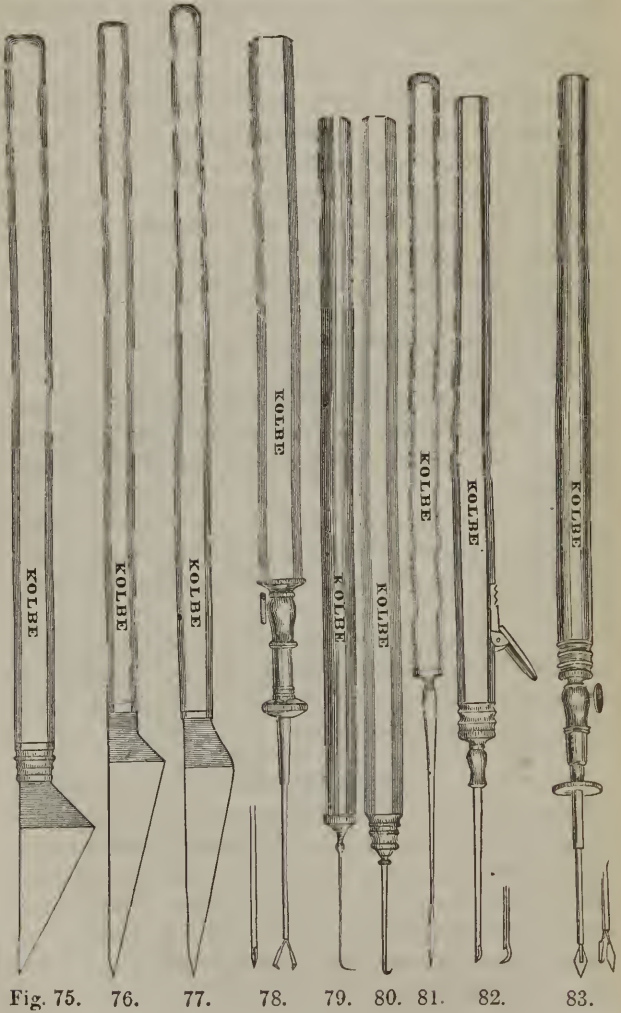
*Conical cornea* is characterized by the peculiar brilliant and rounded appearance of the cornea. It sometimes can be cured by tonics and improving the general health of the patient.

*Iritis*.—Inflammation of the iris generally involves the sclerotic. It may be diagnosed by the iris changing its colour, by intolerance of light, dimness of vision and a burning and stinging pain in the eye.

## TREATMENT.

Cold packs should be applied to the eye and frequently changed. Small blisters should be placed behind the ears, and the patient given one-eighth of a grain of podophyllin and one-half of a grain of quinine every two hours, until it acts freely upon the bowels. If there is deposition of lymph, it should be absorbed by giving small doses of menisperm and apocynin.

The following plates (figs. 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93,) show some of



the principal instruments used in the various operations on the eye:

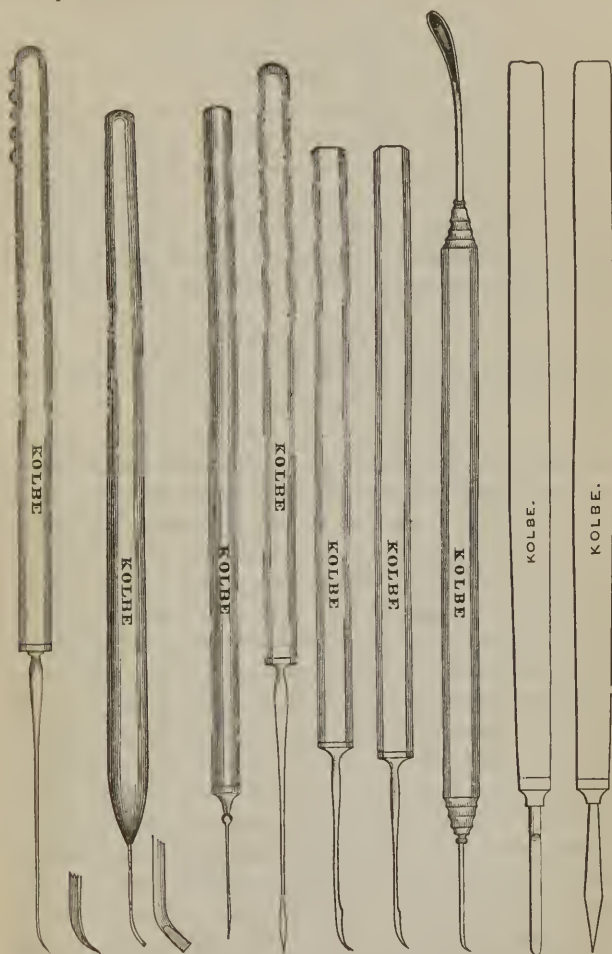


Fig. 84.

85.

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Fig. 93.

### C A T A R A C T .

For the description and treatment of this disease, we introduce the very excellent observations of Dr. Druitt:

#### D E F I N I T I O N .

An opacity of the crystalline lens, or of its capsule, or of both.

#### S Y M P T O M S .

Before examining any patient with suspected cataract, the pupil should be dilated with belladonna, and then, if there be capsular cataract, there will be seen behind the pupil an opake body, of a gray dead-white; if lenticular cataract, of a bluish-white, or amber-colour. The patient usually gives, as his history, that his vision has become gradually impaired—that objects appear of irregular outline, or multiplied, or as if surrounded with a mist, or as if a eloud were interposed between him and the eye. If lenticular cataract alone be present, he will say that the sight is better in the evening, or in a subdued light, or when the baek is turned to the window, or after the application of belladonna—obviously because the pupil, being dilated under these circumstances, permits more light to pass through that part of the lens which is as yet transparent, or which, though opake, is thinner, and, therefore, affords less obstruction to light than the centre. In the most confirmed cases, the patient is yet able to distinguish day from night.

There is also the *catoptric test*—that is, the mode of examining the eye by the reflection of light, which was proposed by Mr. Sanson. When a lighted taper is moved before the eye of a healthy person, three images of it may be observed—1st. An erect image, that moves upwards when the candle is moved upwards, and that is produced by reflection from the surface of the cornea. 2d. Another erect image, produced by reflection from the anterior surface of the crystalline lens, which also moves upwards when the candle is moved upwards—and 3d. A very small inverted image, that is reflected from the posterior surface of the crystalline lens, and that moves downwards when the candle is raised upwards. To render this more distinct, the pupil should be dilated, and the examination be made in a dark room. Now, in lenticular cataract, the inverted image is, from the first, rendered indistinct, and soon abolished, and the deep erect one is soon afterwards abolished also. In capsular cataract, from the first, only the front erect image, that, namely, produced by reflection from the cornea, is visible.

#### CAUSES.

Cataract, especially capsular, is sometimes attributed to inflammation, and may be caused in a short space of time by wounds or other injuries of the lens and capsule, or of the eye in general. But the ordinary cataract of the old seems to be a mere effect of impaired nutrition.

1. *Hard Cataract*.—This form is met with in elderly people only. It is caused, according to Mr. Walton, by grayness or opacity appearing in an already discoloured lens, and the greater the colouration of the lens, the less will be the amount of grayness required to obstruct vision. After thirty, the lens naturally acquires a yellow colour, and the hue becomes deeper, till it is like a piece of amber. The amber colour, therefore, the characteristic hue of cataract in aged persons, is not the effect of disease. Sometimes the



colour is as deep as that of dark mahogany, and Mr. Walton has brought before the Royal Medical and Chirurgical Society the particulars of a case in which the cataract was so black that it could not be detected till the eye was examined with the ophthalmoscope, or the concentrated light of a powerful lens.

The opacity generally commences in the superficial layers of the lens, for the most part in the form of streaks or radii, converging towards the centre, or, more correctly speaking, following the course of the natural divisions of lens. Less frequently it commences in the nucleus in the form of a cloudy opacity. When the disease is of long standing, the surface of the cataract frequently assumes a uniform milk or cream-white colour.

According to Dr. R. Taylor,\* the change in such cataractous lenses is two-fold. The nucleus becomes hard and dry, to a degree far exceeding what is ever seen in the healthy lens, while the superficial layers are softened, frequently to the state of a semi-fluid pulp. The nuclea lens-tubes are hard, atrophied and brittle, and are rendered more or less opaque by fine molecular deposit, as well as by little cracks and fissures. Those of the superficies are softened, and more or less disintegrated. They also are dotted over with fine molecular matter, which is also found floating free in masses, and filling up and rendering opaque many of the superficial lens-cells. This molecular matter is probably the result of the coagulation of the albuminous blastema, by which the whole of the lens textures are pervaded.

2. *Soft Cataract.*—While hard cataract is seen only in persons above thirty-five years of age, soft cataract may occur at any period of life. It appears to be due to disintegration affecting the whole substance of the lens, similar to that which affects the surface alone in hard cataract. The

\* *Lancet*, Nov. 17, 1855.

colour in infancy is bluish-white, like milk and water. Later in life, there is generally less of the blue tint. The surface frequently presents an appearance like that of fractured spermaceti, or it may be traversed by radii and streaks, which glisten like a piece of tendon. In this variety vision is generally more imperfect than in the hard kind. The iris is frequently pressed upon by soft cataract, but this may also occur in hard cataract when the superficies are much degenerated. This phenomenon is probably due, in the majority of instances, to the swelling of the diseased lens from the imbibition of moisture, but, in other instances, the opinion of Mr. Walton is doubtless correct, that it is caused by unnatural vascularity in the deep-seated textures of the eye-ball.

3. *Congenital Cataract* must, therefore, always be soft. In this variety, vision is generally more imperfect than in the hard kind.

4. *Capsular Cataract*.—In this variety the opacity may be general, or may commence partially. It is almost invariably of a dead or chalky whiteness, scarcely ever shining, and always showing the same opacity in whatever position it may be viewed. It is not unfrequently the result of a slow inflammation, which may be accompanied with pain in the eye. It may be produced also by inflammation extending from the iris. Opacity of the *anterior* portion may be seen immediately behind the iris. That of the *posterior* appears at some little distance behind the pupil, and presents a concave striated surface, of a dull-yellowish appearance.

5. *Capsulo-Lenticular* cataract is very common—in fact, entire opacity of the capsule is always followed by opacity of the lens.

*Treatment*.—The cataract must be removed by operation. No other treatment is of any avail to get rid of the

disease.\* It is, however, a general rule not to operate till the cataract is *mature*—that is, not whilst the degree of vision is sufficient for ordinary purposes; more particularly if the patient is very old and feeble, or if one eye is already lost; because, under these circumstances, a failure of the operation would entail utter blindness. Therefore, the patient should assist his vision by dropping into the eye one or two drops of carefully-filtered solution of extract of belladonna (℞j. ad. ℥j.) in distilled water, night and morning, so as to dilate the pupil, and defer the operation till despite of that aid, his blindness is complete.

*Prognosis.*—This will be favourable if the patient is in good health and of temperate habits; if the iris moves freely, and if the retina seems perfectly sensible to light. On the other hand, it will be doubtful if there are signs of vascular disturbance in the eye; if the iris is motionless or altered in colour; or if the cataract is complicated with amaurosis, softness of the eyeball, or glaucoma.

*Preparation.*—Before operating, the patient should be put into as perfect a state of health as possible. The state of the biliary, and more especially of the urinary excretion,

\* In this we think that Dr. Druitt is labouring under a great mistake, as we have removed several cases of soft and one or two cases even of hard cataract by the use of the following remedies:

℞.—Menispermin, ..... ℥j.  
 Xanthoxylin, ..... gr. x.  
 Muriate of Ammonia, ..... ℥ss.  
 Sacch. Alba. .... ℥j.  
 M. Trit. ft. pulvis no. xx.

Dose, one, three or four times a day. This medicine should be continued until free ptyalism is produced.

The system should be well protected with tonics, chalybeates and nutritious diet, and in some cases phytolaccin and podophyllin should be alternated with the above compound. The course of time required to remove opacity of the lens or of its capsules will be from six to eighteen months. Where this method fails, recourse should be had to the operations as described by Dr. Druitt.

should be examined, and purging, exercise, and low diet be enjoined, if the habit is inflammatory. But no rude lowering measures, or violent purgation, or sudden change of diet should be resorted to indiscriminately; and some patients require a better diet, with tonics and wine.

There are three methods of operating:—1, *extraction*; 2, *displacement* (or *couching*;) and 3, *solution*, or the operation for causing absorption.

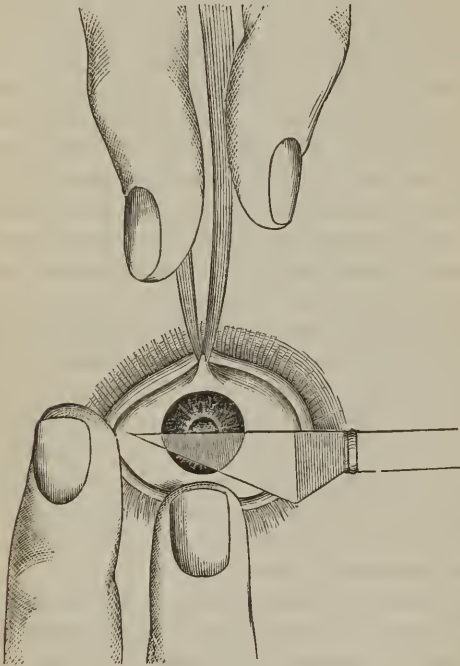


Fig. 94.

I. EXTRACTION.—The object of this operation is, to make an incision through half of the circumference of the cornea, almost close to the sclerotic; to lacerate the capsule of the lens; and then to extract the cataract entire, through

the pupil. Its advantage is, that it effectually removes the cataract; but it is the most difficult of all operations for cataract, and demands, for its success, much knowledge and practice. It is best adapted for hard cataracts in elderly people. But it should not be attempted, 1st, if the patient is very feeble, in case the wound of the cornea might not unite. 2d. If the anterior chamber is very small and the cornea very flat, so that a sufficiently large opening cannot be made in it. 3d. If the iris adheres to the cornea, or if the cataract pushes it forward against the cornea, thus rendering it impossible to incise the cornea without wounding the iris, or if the pupil is habitually contracted. 4th. If the eye is sunken, or if the fissure of the lids is preternaturally small. 5th. If the eyes are very unsteady, or if the patient is subject to habitual cough or asthma, or is unmanageable in consequence of infancy or idiocy. Some practitioners direct that one eye only should be operated on at a time, the other being kept as a reserve, whilst others operate on both together.

*Operation.*—In the precise manner of performing this, there are very many varieties. Some surgeons incise the lower, others the upper part of the cornea; some sit before, others behind the patient; some are ambidexter, others use the right hand only. But referring those who may wish for fuller information to the various works on ophthalmia, we shall content ourselves with describing one method of operating, which is, we believe, most generally employed at the present day.

The instruments required are, 1, a knife having a triangular blade; the back straight and blunt, the point sharp, the edge slanting obliquely, the blade increasing in thickness, as well as in breadth, as it approaches the handle. The advantages of this shape are, that it fills up the incision which it makes, and prevents the escape of the aqueous humour; and that the flap of the cornea is made by one simple motion, that is, by pushing the knife on-

wards. That used by Mr. Walton measures from the point to the shoulder .8 inch, and across the broadest part .4 inch.

2. A *curette*; an instrument with a curved needle at one end, and a small spoon at the other. Mr. Walton has devised a guarded curette, in which the hook is concealed till protruded by a spring. 3. A secondary knife to enlarge the incision in the cornea if required. 4. A sharp hook.

The patient may be either sitting, or lying on his back, with the head properly supported, and in a good light. The operator, behind him, uses his right hand for the right, and his left for the left eye. An assistant draws down the lower lid, and steadies it against the malar bone, without pressing on the globe. The operator, with the forefinger of the non-operating hand, raises the upper lid and locks it under the edge of the orbit, just resting the point of this forefinger against the upper surface of the globe, and that of the middle finger against its inner surface, so as to steady it. Then holding the knife lightly with the thumb and first two fingers of the other hand, and resting his hand against the side of the face, he commences by 1st. Puncturing the cornea at the centre of its outer margin, half a line from the sclerotica. (See fig. 94.) 2d. The blade is pushed gently across, parallel with the iris, in such a way that the point shall penetrate the other side of the cornea, exactly opposite to the first puncture; and that the edge shall cut an even semicircular flap of the upper half of the cornea. Just when the incision is complete, which should be slowly and carefully done, the eyelids should be dropped, and all pressure discontinued. 3d. Having waited a few seconds, the surgeon lifts the upper lid sufficiently to expose the cornea, tells the patient to look towards his feet, so that the globe may be directed downwards; then introduces the curette, and freely lacerates the capsule of the lens. 4th. He makes *very gentle* pressure on the under part of the globe, and on the upper eyelid, till the lens



rises through the pupil and escapes. Lastly, the eye should be opened after a minute or two, to see that the flap of the cornea is rightly adjusted, and that the iris is not prolapsed; if it is, the eyes should be exposed to a bright light, so as to make the pupil contract, and the prolapsed portion should be gently pressed upon with the spoon of the curette. Then the operation is finished.

*Complications.*—1. Sometimes, in consequence of the premature escape of the aqueous humour, the iris falls forwards under the edge of the knife. If the point of the knife is completely tangled in the iris, it is necessary to withdraw the instrument, heal the wound, and repeat the operation afterwards. If, however, a little bit of it should get under the edge of the knife, when the section is nearly complete, the operator may push on boldly, since, if a little piece of it be cut, it will be of no great consequence. 2. If the opening of the cornea is not large enough, it must be enlarged with the secondary knife. 3. If a portion of the lens remain behind, it should be left to be absorbed—unless it has passed into the anterior chamber, and can be removed very easily indeed. 4. If the vitreous humour seem disposed to escape, the cataract should be hooked out with the hook.

*After Treatment.*—The patient should be put to bed, with the shoulders raised, the room darkened, and with a very soft dry linen rag over both eyes. The bowels should be kept open, and everything be avoided which is likely to provoke coughing, sneezing, or vomiting. Mr. Walton allows the usual diet, at the usual times, only in rather diminished quantity; and this plan seems preferable to that of keeping the patient exclusively on slops. If all goes on comfortably the eyelid may be raised on the fifth day, and then if there be no prolapse of the iris, and the cornea be united, he may get up occasionally, wearing a shade, sitting in a darkened room, and walking about a little. After a

fortnight the eye may be opened in a weak light, and be gradually brought into use. But, inasmuch as it remains weak and irritable, the patient must take the greatest care to avoid exposure to cold, excess in diet, over-exertion of the eye, or exposure of it to too strong a light. Gray spectacles are the best protectors against too glaring a light. The patient will require convex spectacles for exact vision, but they must be used very sparingly for some weeks. He should have two pairs, one with a short focus for near objects, and another of long focus for distant objects. The inflammation which may come on after the operation may be of two kinds. If the eyelids are swollen, and florid, and tender, and there is a thick yellow secretion about the lids, and the conjunctiva is red, swollen, and ecchymosed, the inflammation is acute, and requires to be treated by veratrum and purging. But if, as Mr. Tyrrell shows, the palpebræ are not much discoloured, and the conjunctiva œdematous, the patient will be benefited by good broth, carbonate of ammonia and opium.

II. DEPRESSION OR COUCHING.—The object of this operation is to remove the cataract from the axis of vision. It is a clumsy and violent operation, and adapted only to those cases of hard cataract, of which the extraction would be unadvisable, for reasons mentioned in a preceding page. The disadvantages of it are, that the pressure of the lens on the ciliary processes and retina is liable to be followed by protracted inflammation or amaurosis; and that the lens may rise again to its old place, and obstruct vision as before. The preparation of the patient, his position during the operation, as well as that of the surgeon, and the duties of the assistant, are the same as required for the operation of extraction. The pupil should be dilated with belladonna.

*Operations.*—1. A curved needle is passed through the outer side of the sclerotic, the  $\frac{1}{6}$ th part of an inch behind the margin of the cornea, and in the transverse axis of the globe. It is carried into the vitreous humour, upwards

and forwards behind the iris, and in front of the cataract; which then is steadily and gently pressed upon till it is carried downwards out of sight. It should be held down for a few moments to fix it, and if it rise again, it must be again depressed for a short time. Then the needle is withdrawn.

2. *Egerton's Plan*.—The cataract is transfixed through the sclerotica with a straight needle, and carried downwards in an oblique direction. The late Mr. Scott and Mr. Morgan used to practise this.

III. THE OPERATION FOR PRODUCING ABSORPTION is very easily performed, and excites very little inflammation; but it requires to be repeated several times, and the cure occupies several weeks or months. It is well adapted for soft cataracts, especially the congenital, but very seldom, if ever, answers with the hard cataracts of old people. The instruments employed are needles, straight or curved; which are now made of great delicacy, strength, and hardness. The pupil must be freely dilated.

*Operations*.—1. The needle may be introduced behind the iris in the same manner as for depression. Then the anterior layer of the capsule is to be freely divided, and the needle, having been passed once or twice through the substance of the lens, is to be withdrawn. Care must be taken not to dislocate the lens in this first operation. The cataract will be more or less dissolved by the aqueous humour, and be absorbed. After the lapse of a few weeks, the operation may be repeated, the capsule may be lacerated more extensively, and the lens be cut up into fragments, which, if perfectly soft, may be pushed through the pupil into the anterior chamber, where absorption is more brisk. This operation may be repeated again and again, if necessary. But if a hard fragment be pushed into the anterior chamber, it may probably excite great inflammation, and require to be removed by operation, so that the

surgeon had better avoid attempting to do too much at once.

2. Or the needle may be introduced through the cornea, an operation, now styled the anterior operation; formerly *keratonyxis*. It is safer, simpler, less painful, and less injurious to the eye than the first mentioned; inasmuch, as a wound of the cornea alone is less serious than one implicating vitreous humour, sclerotic conjunctiva, and perhaps, retina or ciliary process. The needle is passed through the cornea, about an inch from its margin, and is made to lacerate the capsule to the extent of the pupil, so as to admit the aqueous humour to the substance of the lens; but without displacing or cutting into the fragments, or in fact, attempting to do too much. This operation is liable to be followed by severe pain and vomiting, if the cataract be so fluid that it mixes readily with the aqueous humour; or if portions of the cataract press on the iris: in the latter case, the irritation may be so severe as to render it necessary to perform extraction. The operation may require to be repeated after two or three months.

3. There is a third modification of this operation, which Mr. Tyrrell termed *drilling*. It is particularly adapted for cases of capsular, or capsulo-lenticular cataract, with adhesion of the pupil, caused by iritis. It is performed by introducing a fine straight needle through the cornea, near its margin, and passing it through the pupil into the lens to the depth of about one-sixteenth of an inch, and rotating it freely. This operation may be repeated at interval of four, five, or more weeks. It causes the lens to be dissolved by the aqueous humours; and if the puncture be made in a fresh place at each operation, that portion of the capsule which is behind the pupil may become loosened and detached. This operation also, according to Mr. Tyrrell, may be occasionally resorted to, to diminish the size of the lens, previously to depression or extraction.

## OPERATIONS ON INFANTS.

Congenital cataracts should be operated on early; within four months, if possible, lest the eye, which, when born blind, habitually oscillates from side to side, may never acquire the power to be directed to one particular object. The pupil being well dilated, the child, narcotized by chloroform to insure quietness, should be placed on a table—the head on a pillow, and rather hanging over it—one assistant holding the legs and trunk, a second the arms and chest, a third, fixing the head between his two hands, and a fourth, depressing the *lower* eyelid with one hand, and steadying the chin with the other. The operator then, seated behind the patient, performs the operation for absorption, as before described. Care must be taken not to dislocate the lens. This operation on children, and, in fact, on persons under twenty, generally excites so little inflammation, that both eyes may be operated on at once, but the bowels must be kept open, and leeches should be applied if there be pain.

## CAPSULAR CATARACT.

When congenital cataract of the capsulo-lenticular sort is left to itself, the lens often becomes absorbed, and the capsule, which is mostly tough or opaque, remains in the field of vision; and it sometimes happens that an opaque capsule is left, or that it becomes opaque after one of the operations for cataract. There are three plans of treatment. 1. A needle may be introduced, as for depression; and then may be made to tear through the opaque capsule, which then may shrink and leave the pupil clear. 2. The upper part of the capsule, for four-fifths of its circumference, may be detached by the needle from the suspensory ligament, and then be pushed down below the pupil. 3. If no other plan succeed, an opening may be made in the cornea, through which it may be extracted by means of a small hook or forceps. Mr. Middlemore has proposed a plan for removing such bodies through the sclerotic.

There is great uncertainty of clearing the pupil of capsule by any other mode but extracting it, yet so dangerous has that operation been deemed, from the escape of the vitreous humour, which is almost sure to occur, when previous operations have been done within the eye, that the extraction is seldom attempted. To meet this difficulty, Mr. Haynes Walton has introduced into practice, a peculiar sort of forceps, for the removal of the capsule. The instrument is no larger than a needle, so that the opening in the cornea need not be larger than necessary to allow of the exit of the strip of capsule, and all the objections to extraction are overcome.

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## DISEASES OF THE EAR.

### FOREIGN SUBSTANCES IN THE EAR.

Children frequently put peas, beans, kernels of corn, bits of glass, &c., into the ear, which, if allowed to remain, will produce active inflammation. Hence, they should be removed as soon as possible. It may be done by syringing the ear with warm water or by means of forceps. (Fig. 95.)



Fig. 95.

### ACCUMULATION OF WAX IN THE EAR. 1

Wax frequently accumulates in the ear to such an extent as to obstruct the hearing. It should be removed by frequently syringing the ear with warm water. If it is not removed by the first syringing, it should be repeated, and the ear kept packed in the intervals with pads wet in warm water.



## POLYPUS.

Fleshy pedunculated growths sometimes occur in the ear. They generally spring from the glandular portion of the meatus. They should be clipped off at the point of attachment, with a pair of fine pointed seissors, and the wound touched with a weak solution of sulphate of zinc.

## FUNGUS GRANULATIONS OF THE EAR

Should be removed by syringing with a solution of nitrate of silver of the strength of three grains of the silver to one ounce of water. Afterwards apply a lint to the ear, moistened with the following ointment:—

R. Glycerine,.....3j.  
Sanguinarin, .....gr. x.

℞. Wet small pledgets of lint with it, and apply to the ear twice a day.

## NEURALGIA OF THE EAR, OR OTALGIA,

Signifies violent pain in the ear, and is caused by local inflammation and carious teeth, together with the general causes of neuralgia. TREATMENT.—If caused by inflammation, a warm poultice of slippery elm, moistened in tincture of opium, should be applied, and repeated as often as it gets cold. If produced by carious teeth, the tooth should be removed. If it is a general neuralgic affection, it should be treated as indicated under the head of neuralgia.

## DEAFNESS.

Deafness may be caused by a closure of the Eustachian tubes, by enlarged tonsils, by anæsthesia of the auditory nerve, and by inflammation and ulceration of the tympanum. It may depend upon organic lesion of the brain. TREATMENT.—When it depends upon enlargement of the tonsils, compound syrup of stillingia and iodide of potassium should be given, internally, and the throat frequently gargled with a decoction of equal parts of hydrastis capsicum and bay-



berry. Where it depends upon anasthesia of the nerve, the following compound may be given:

R. Prussiate of iron,.....ʒj.  
 Keith's Strychnin,.....gr. j.  
 Quinine, .....gr. x.  
 ℞ ft. pulvis No. xx. Dose, one every 4 hours.

The parts around the ear should be bathed three or four times a day, in a strong decoction of capsicum, and in some cases, gentle currents of electricity may be passed through the ear to advantage.

## INJURIES AND DISEASES OF ARTERIES.

### WOUNDS OF ARTERIES.

*Symptoms.*—An artery may be known to be wounded by the flow of blood, which is in repeated jets, corresponding to each beat of the pulse, is profuse, and of a florid colour.

*Pathology.*—The bleeding from wounded arteries must necessarily be dangerous, because, from the nature of their coats, they remain open and patulous, and do not collapse as the veins do, and because of the perpetual current of blood impelled by the heart.

There are four processes employed by nature for the temporary suppression of hemorrhage. First, the divided orifice contracts; and secondly, it retracts into the cellular sheath; thirdly, the blood coagulates in the sheath of the artery, and in the wound, and thus obstructs the farther exit of it; and fourthly, the faintness induced by hemorrhage both checks the current of blood, and gives it an increased disposition to coagulate.

These processes will not succeed in stopping the flow of blood in large arteries, unless the wound be very small, and but rarely in arteries of the second order; but if the wounded artery be small, the hemorrhage will generally cease spontaneously.

Partial division, or puncture of an artery, is more dangerous than complete division, because contraction and retraction are prevented. When an artery is torn across it contracts almost immediately, and becomes quite impervious.

*Treatment.*—For the suppression of hemorrhage by ligature, we have already given the treatment on page 290. The medical treatment consists in the application of styptics, such as geranin, tannin, matico, Beach's styptic powder, ice water, and pressure. These remedies may be used in combination or alone, when the nature of the injury is such that the ligature cannot be applied. Where there is secondary hemorrhage, or a hemorrhagic diathesis, capsicum, iron, and cod liver oil, are the remedies to be used internally. The best method is to give two grains of capsicum, and one of iron, in one tablespoonful of cod liver oil, three or four times a day.

*Inflammation of the Arteries* is of three forms:—1. *Sub-acute Arteritis* is a local inflammation, producing redness and thickening of the artery, with effusion of lymph into its cavity, and coagulation of blood within it. The *symptoms* are tenderness and swelling of the affected part, with violent pain, numbness, absence of arterial pulsation, and tendency to gangrene in the parts receiving blood from the affected artery.

*Acute Arteritis* (*Encysted or Effused Arteritis*) has a tendency to involve the arterial system generally, and produce rapid suppuration. It may be idiopathic, or caused by a wound. It is known by very violent fever, and great throbbing of the arteries, succeeded by symptoms of typhoid fever, with livid vesications on different parts of the body.

*Chronic Arteritis* may be supposed to be an occasional cause of thickening, softening, ossification, occlusion, and other forms of degeneration of the arteries.

*Treatment.*—In sub-acute arteritis and erysipelatous arteritis hot packs should be applied to the affected parts, and

changed as often as they get cold. The bowels should be opened with small doses of jalapin and apocynin, after which the patient should be put upon one-sixteenth of a grain of veratrin, and from one to two grains of quinine, every two or three hours, until the disease is controlled. The chronic form of the disease should be treated with compound syrup of stillingia, compound syrup of frostwort, iodide of ammonia, iodide of iron, iodide of potassium, &c.

#### ANEURISM.

An aneurism is a sac filled with blood, and communicating with an artery, by the rupture or dilatation of which it has been produced.

There are three kinds of aneurism:—First. The *true* aneurism, which consists of a sac formed by one or more of the arterial tunics. Second. The *false* aneurism, which is formed after a puncture of an artery by a dilatation of the adhesive lymph by which the puncture was united. Third. Diffused aneurism, formed when an artery is lacerated by fractured bone, or ruptured by a blow without a wound in the skin.

*Pathology.*—The formation of an aneurism is preceded by some disease of the artery, and generally commences by a giving way of its middle and internal coats at the site of some atheromatous spot, after which the pressure of the blood dilates the external or cellular coat into a pouch.

*Symptoms.*—If an aneurism be seated in the neck or limbs, it appears as a tumour in the course of an artery, and pulsating with it; if in the chest, it will be principally known by an unnatural pulsation felt by the patient, together with symptoms of disordered circulation and respiration; and if in the abdomen, it may be felt through the parietes.

*Diagnosis.*—Tumours in the vicinity of arteries may be distinguished from aneurisms by the absence of pulsation. Aneurismal tumours are usually soft, and yield a peculiar fluctuation upon percussion.

*Prognosis.*—As an aneurism enlarges it usually becomes strengthened by the adhesion of its walls to the adjacent cellular tissue, although its coats are thinned by gradual extension. The gradual extension of an aneurism upon contiguous tissues produces their absorption; thus the abdominal and thoracic viscera, the bones, and even the trachea and bronchia, are not unfrequently destroyed by constant pressure of aneurismal tumours. The disease may result in a spontaneous cure, by the gradual cessation of the circulation of blood, the formation of a firm coagula in the sac, and the gradual absorption of the tumour; or it may prove fatal by the rupture of the sac and hemorrhage, or by pressure and absorption upon the spinal column, or other vital parts.

*Situation of Aneurism.*—The most common form of aneurism, is that of the aorta; the next, popliteal artery; third, femoral in the groin; fourth, carotid; fifth, subclavian; sixth, axillary; seventh, external iliac; eighth, innominate; and in other arteries only occasionally.

*Causes.*—Aneurisms are produced, first, by predisposition on the part of the patient to arterial disease; second, by strong mental emotions, by injuries, great bodily exertions, &c.

*Treatment.*—Where an aneurism is produced by a tendency to disease of the arteries, the patient should be placed in bed and kept perfectly quiet, and put upon cod liver oil, iron, myricin, chimaphilin, alnuin, and such other remedies as will impart vigour and tone to the constitution, and regulate the emunctories. At the same time a sufficient amount of veratrin, or the essential tincture of *veratrum viride*, should be given to control the circulation. The pulse should be kept at about fifty-five or sixty; then, if the aneurism is located so that pressure can be made, folds of cotton should be wrung out of hot water, and applied with a moderate degree of pressure, by means of a bandage. These packs should be changed as often as they get cold, and the pressure

renewed. I have recently cured a bad case of popliteal aneurism by this method, and arrested the progress, and nearly dispersed the tumour in several other cases. In a few cases I have derived benefit by passing gentle currents of electricity through the tumour. Where this method does not succeed, the arteries should be ligated between the aneurism and the heart. The ligature should not be placed so near the aneurism as to involve diseased portions of the artery, or so far from it as to allow the circulation to be kept up by collateral branches. When the artery cannot be tied between the aneurism and the heart, it has been proposed to tie it on the distal side, and the operation has been performed successfully by Mr. Guthrie, Wardrope, and others.

*Diffused Aneurism* is a wound of the artery by a broken bone, without laceration of the skin.

*Aneurismal Varix* is produced by puncturing an artery through a vein, the adhesion of the coats, and a permanent opening between them. The ligature is the treatment.

*Fistula in Ano* signifies a small cartilaginous opening by the side of the sphincter ani. It is called complete fistula, when it opens into the bowels; and blind fistula, when it does not open into them. It is difficult to cure, on account of the constant interference of the sphincter and levator muscles.

*Causes.*—It is produced by abscesses near the rectum, which are caused by hemorrhoids, ascarides, obstinate constipation, and injuries and foreign bodies introduced into the rectum.

*Treatment.*—The bowels must be regulated, and any defect in the system receive attention; after which three methods have been introduced for curing this disease. One is to introduce a sharp-pointed bistoury into the opening, extending it through to the rectum, and introducing the finger into the rectum, bringing the finger and point of the knife in contact, and withdrawing them both at the same time, so as to separate the sphincter and adjacent tissues.

The second method is to pass a ligature, secured to the end of a bent probe, through the sinus into the rectum, and out at the anus, tying the ends to a small cork, and twisting it every day until it finally cuts its way through. Silver and gold wire, and silk and catgut ligatures are used for this purpose.

The third method is that of introducing a solution of sesqui-carbonate of potassa, or sulphate of zinc, of sufficient strength to break down the fistulous induration and cause adhesive inflammation. This can usually be accomplished by dissolving one dram of sulphate of zinc in one ounce of water, and injecting it into the sinus. It should be injected with sufficient force to reach the base of the disease. Some prefer a solution of sesqui-carbonate of potassa, of the same strength. If this method does not succeed after a few months' trial, together with constitutional treatment, pledgets of lint, moistened with an ointment of sanguinaria or podophyllin, may be crowded into the opening and caused to remain until suppuration and sloughing ensue, when they should be removed, and the parts injected, as previously stated.

*Abscesses about the Rectum.*—Abscesses about the rectum are characterized by the same symptoms as abscesses in other parts of the body. They should be treated by hot packs, hot sitz-baths, anodyne poultices, mild purges, veratrum, aconite, and rest. When pus forms, the abscess should be opened; and if terminating in fistula, treated as previously described.

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## TETANUS.

Tetanus is often the result of wounds, and is a disease of the spinal cord, produced by causes at first of a local nature. The characteristic symptom is spasm. When the muscles upon the anterior part of the body contract most, so as to bend the body forward, it is called *Emprosthot-*



*nos*; when those on the back, *Opisthotonos*; when the body is bent to one side, *Pleurothotonos*. Tetanus may be acute or chronic, traumatic or idiopathic. The acute and traumatic are most frequent, and come most properly under the care of the surgeon. This disease occurs most frequently in hot climates, from punctured and lacerated wounds in tendinous parts. It is common in military practice, and is more often observed in men than in women. The predisposing causes are not well known. The period of development greatly varies. Usually, however, it occurs in from one to thirty days from the time of the injury. It is a disease of the excito-motor nerves.

#### S Y M P T O M S .

At first there is pain and stiffness in the neck and about the jaw. The natural antagonism of the facial muscles is wanting, giving rise to a peculiar ghastly and puckered appearance. Thirst and dryness of the fauces, difficult deglutition and mastication, stiffness and rigidity of the neck, tonic spasms of the masseter and temporalis muscles, distorted eyeballs, dilated nostrils, pain shooting through from the lower end of the sternum to the back, caused by spasm of the diaphragm, are the usual symptoms. Then succeed general spasms of the abdominal and respiratory, and of the entire muscular system. The sphincters are involved in the general spasm, the bowels are, therefore, constipated, and the urine is retained. There is intense pain and profuse perspiration. The pulse, before full and strong, becomes weak. The intellect is unclouded until gradual asphyxia and exhaustion bring on the coma of death.

In the acute form, the disease seldom continues beyond a few days.

The treatment is local and constitutional.

The local treatment consists in dividing the nerve by making, close to the vessel if possible, a V shaped incision down to the bone, so as to divide all the nervous com-



munication between the part and the spinal cord. The part should then be enveloped in a warm poultice of slippery elm, or put into a warm alkaline bath, or fomented, according as these means produce relief to the patient. To the divided tissues atropin may be beneficially applied, to lessen local irritation. With a view to produce free sloughing, caustic potassa is recommended, its use to be followed by poultices and fomentation. The bowels should be opened by three grs. jalapin, ʒj. cream of tartar. Divide into three powders, and give one every three hours. Then the tincture of lobelia, and a strong infusion of scutellarin and cypripedin should be given, at first in small doses, and gradually increased until free and copious emesis is produced. If this should not overcome the spasm, a vapour bath should be administered, and enemas of lobelia given until every muscle is relaxed, and the respiration and deglutition are normal and easy. The use of lobelia is much safer than that of tobacco, and its relaxing effects may be carried to a greater extent without endangering life. The cannabis indica, given in three grain doses of the extract, repeated every hour or half hour until narcotism is produced, is highly recommended by Dr. James Miller. At the same time that these powerful sedatives and antispasmodics are acting upon the system, especial care should be observed to sustain the strength by nutritious enemas, and by drinking of nourishing broth and gruel, and the administration of stimulants and tonics. From one-tenth to one-eighth of a grain of Keith's Strychnin given every two or three hours, until one or two grains are given, has proved effectual. Of late, the application to the spine of solid ice, impacted in a large intestine or a bag, has been highly recommended to allay inflammation of the spinal cord. It operates as a powerful sedative, and may be applied so long as the system is not prostrated by its effects, or so long as it does not produce syncope, chilliness, and a feeble pulse. Aconite and belladonna, more especially the former, have been used to considerable extent in cases of disease of

the spinal cord. Opium has been thoroughly tested in these cases, and found not to be well adapted to the removal of the difficulty. To procure rest, hyoseyamin, conium and lupulin will be found preferable remedies. Aconite, as an antiphlogistic, is deserving of high reputation, although its antispasmodic tendency is not so great as that of lobelia. The tinct. of the cannabis indica is often useful, and should be prepared from the inspissated extract. I will here remark that the strength of this remedy is variable. In the Pennsylvania Hospital an article has been used so powerful, that one-twelfth grain has been the prescribed dose. It is well, therefore, to test the strength of each specimen of the remedy before administering the maximum dose, to which reference is above made. Chloroform and ether are thought to be beneficial; but these anæsthetic agents are not so valuable as the relaxing means above referred to. If, however, the circumstances should require their use, after other means fail, they deserve a trial. Counter-irritation over the spine, with the endermic use of aconitine, atropine, and morphine, will sometimes prove valuable adjuncts in treatment, but will seldom be necessary after the use of the means already described. Veratrin, from the *veratrum viride*, is another sedative agent of great power, that is applicable in cases of high sthenic inflammation, and will, therefore, be most useful in the inflammatory stage of this disease.

Aside from these remedial measures, the use of hygienic means is imperative. A pure air, frequent ablutions of the surface, perfect freedom from care, quiet, and seclusion from noise and light, and all intruding visitors, must be observed.

A summary of an Eclectic constitutional treatment, adapted to the cure of this formidable disease, is this:—absolute rest and seclusion, purgations to cleanse the alimentary canal, intestinal enemata of a nourishing and stimulating character, nutritious gruels and broth, given frequently in

small quantities, cold applied to the spine so long as agreeable, and not too sedative; the use of lobelia, scutellarin, cypripedin, in infusion, to produce emesis and relaxation, with the early administration of tonics and stimulants, on the first appearance of prostration. Under this course of medication the majority of cases will recover, for I feel confident that this treatment is much more philosophical and effectual than that heretofore prosecuted by medical authors of the Allopathic school.

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### HECTIC FEVER.

When fever arises as the result of the absorption of pus, it is called *hectic fever*. In many instances, hectic fever has been known to arise from the introduction of very small quantities of pus into the blood.

In surgical practice hectic is very frequently met with in cases of disease or injury of the joint. It may occur in all cases where pus is so confined as to be absorbed, as in the last stages of consumption; also, where there is great debility—especially in scrofulous and tuberculous constitutions.

#### SYMPTOMS.

In surgical hectic, the symptoms are never so prominent as they are in consumptive or scrofulous subjects, yet they are sufficiently so to indicate the true nature of the disease.

In hectic fever, one of the first symptoms is usually wandering pains in the limbs like rheumatism, in some cases being of the most acute and torturing character.

In one case of hectic fever which came under my notice, caused by the absorption of pus from the uterus, the premonitory symptom was acute pain in different parts of the body, of a neuralgic character, appearing in regular paroxysms, and lasting four or five hours. In other cases, the

pain amounts only to a mere aching of the bones, accompanied by a feeling of languor and lassitude, very much resembling incipient ague. As soon as the fever is fairly set in, the pains mostly leave.

“The first symptoms of hectic may be easily, and, in fact, frequently are, unnoticed; it is so irregular in the occurrence of its paroxysms, that in any six days of its duration, there will not be three of these days in which the paroxysm will happen at the same hour.

“The patient at first only feels a little weakness; he is conscious of not being able to use as much exertion as he used to do, and his friends remark that he does not look so well; he rapidly loses flesh, yet his appetite may be as good as usual, and his functions go on regularly. It is soon perceived that once or twice a day he gets a change. About noon a shivering comes on, and lasts perhaps for half an hour, during which he looks pale, and his countenance drawn in; after this the warmth returns, and the heat soon increases beyond the standard of comfort, particularly in the palms of his hands, &c., which have a peculiarly biting, hot feel. There is nothing in this cold and hot stage of hectic like the corresponding symptoms of most other fevers. He may, without arousing any particular attention in his attendants at the incident, get his chair drawn nearer to the chimney, have the fire stirred, and have something wrapped round his feet; by and by he complains that the fire is too brisk, moves away from it, has a screen interposed, causes the door to be left open, and that’s all. Sometimes the chilliness returns during the hot stage, or there comes on the sweating stage, (which, in hectic, is not a general full perspiration over the whole body,) and on its subsidence, leaves the patient pretty well until the next attack, which usually comes on about six or seven o’clock in the evening. The sweating is seldom perfect; it is generally over the chest and arms, but sometimes on the lower extremities alone; it is not like the sweat in some other

cases, but a greasy kind of moisture. The appetite, as I have said, remains tolerably good, and the thirst is less than in other fevers. As it goes on, the patient still loses flesh and strength, the appetite begins to decline, his tongue continues clean, but redder than natural; his mind becomes easily excited, his pulse is about ninety—seldom gets as high as one hundred and twenty; his countenance changes; his forehead seems larger from the falling off of his hair; his eyes get a pearly white appearance, and sometimes are peculiarly brilliant; he flushes often, or there is a circumscribed redness on one or both of the cheeks; his nose is drawn in, and his finger nails become incurvated. A colliquative diarrhœa generally occurs in the morning, and when this is the case, he sinks rapidly—not, indeed, as some imagine, from the consequences of the diarrhœa itself, but from the extent to which the fever has arrived. He will complain of a slight sore throat, perhaps, and, on examination, a number of white specks, called aphthæ, are seen on the soft palate, or perhaps on the tongue, or under the tongue, or, what is more frequently the case, there will be seen a large ulcer in the throat.

“In the beginning the hectic has intermissions, more or less perfect, but it soon becomes remittent—that is, never entirely subsiding. In some surgical diseases, as cancer, this fever presents few of its prominent characters well-marked, such as you might observe, for instance, in extensive disease of a joint. In some diseases you will see one symptom, as the diarrhœa, almost alone; in others the sweating, and so on—in fact, there is a great variety in its appearance and course.”

As the disease becomes advanced, night sweats usually take the place of the fever, and in many cases the night sweats are consecutive upon, or may be alternated with it. Whenever this occurs, the patient usually sinks rapidly, and, unless relieved, will succumb to the disease in a short time.

## TREATMENT.

The treatment of hectic depends much upon the cause or causes which give rise to it. When it is dependent upon disease of a local character, the local disease should be treated in connexion with constitutional. If caused by confined pus, if the pus be so situated as to be discharged, it should be done, and thus prevent its absorption.

The internal remedies consist entirely of antiseptics and tonics. Among the best antiseptics used for hectic, is strychnine, in doses of from one-tenth to one-eighth of a grain. The preparation of B. Keith & Co., of New York, is the best that I have ever used. Also, one-half to one drop of hydrocyanic acid three or four times a day, in combination, or in alternation with phosphate of lime, or in connexion with the consumption-pill, or the compound wine bitters, as recommended in the formula of this book. In some cases, Beach's wine bitters may be used. For the fever, aconite may be used in connexion with warm baths and cooling acidulated drinks. If there are night sweats, give the following: three tablespoonfuls of strong sage tea, and five drops of nitro-muriatic acid, every two or three hours during the day. The surface should be bathed every night in a strong solution of salt and water, followed by a cold bath in the morning, and brisk friction, until a complete reaction is produced. The patient should be allowed a liberal amount of brandy, wine or porter, three or four times a day, with exercise in the open air, and as strong diet as the stomach will tolerate.

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## BRUISES.

Bruises are caused in various ways—by pressure between two hard substances, by falls and other injuries that rupture a greater or less number of capillary vessels, nerves,



&c., without tearing, cutting, or absolutely destroying the continuity of the parts. Slight bruises, in many instances, are quite as painful as those which are more extensive, although, from extensive bruises, much more serious consequences are liable to follow.

#### SYMPTOMS.

A bruise is usually of a dark-purple colour, (ecchymosis.) This is owing to the escape of blood from the minute vessels into the areolar tissue.

In the course of a few hours after the bruise, the parts usually become very painful and swollen. If the injury occur to the fingers or toe-nails, they will become blackened, and the pain will be very severe. If the bruise is very extensive, the countenance will be pale, and there will be nausea and vomiting, weak pulse, anxious expression of the countenance, imperfect respiration, dull, heavy pain in the head, unless the injury be directly to the brain, in which case there will be stupor, and, in some cases, involuntary discharges from the bladder and bowels. The surface will be cold, and covered with a clammy sweat. If the bruise involves the vital organs to any considerable extent, it may very soon terminate in death. But where the injury is less severe, in a short time reaction will take place, the pulse will become full, the skin hot and dry, with general fever, &c., &c.

#### TREATMENT.

The treatment will depend altogether upon the nature and extent of the injury. If the injury be slight, but little more is necessary than to wrap the part in cold water and remain quiet for a short time. But when the bruise is violent, the patient ought immediately be put to bed, and the injured part should be kept in a hot pack. At the same time a warm cordial should be administered, or some active stimulating medicine should be given, as capsicum, xanthoxylin, &c. When reaction takes place, to remove



the fever, aconite or veratrum should be given, and the entire surface should be frequently sponged in tepid water. When the constitutional symptoms are controlled, if the hot packs have restored the normal circulation to the injured part, no further treatment will be indicated. On the contrary, if the part still presents a dark purplish appearance, is tumid and painful, the following stimulating poultice will be found valuable: Take pulv. slippery elm, pulv. indigo weed, equal parts; gum myrrh, one-half part; and pulv. prickly ash, one-fourth part; wet with good brewer's yeast, and apply, changing as often as indicated. Internally, from five to ten drops of arnica, and a mild anti-bilious purge, will be all that is indicated, unless the vital organs are involved, when stimulants and tonics may be required.

The old practice of bleeding patients who have received a recent injury is a very pernicious one, and cannot be too strongly deprecated. Its baneful effects are not unfrequently exhibited in the consumptive and scrofulous progeny of those who have been the subjects of this disastrous practice. Where the nails are bruised, and the blood settles under them, much relief will be found by cutting through the nail, and allowing the blood to escape, afterward applying hot packs. For a wash to bathe the parts where the cuticle is not destroyed, tincture of arnica and lobelia will be found valuable. In all cases, the parts should be so thoroughly stimulated as to prevent gangrene and mortification, or the formation of ulcers, which so frequently occurs as the result of bruises.

### NECROSIS, OR CARRIES.

The bones, as well as the soft parts, are liable to inflammation, ulceration, necrosis, or death and exfoliation.

### SYMPTOMS.

When inflammation of the bones occurs in an acute form, there is usually pain, frequent and hard pulse, with marked

derangement of the nervous system. When the disease assumes a chronic form, the pain is more of a heavy, aching character than in the acute form. In most cases where the disease assumes a chronic character, it is either connected with a syphilitic, mercurial or serofulous taint, or appears in one who has taken a large amount of iodide of potassium, or it may be the sequel of acute inflammation, arising from colds, rheumatism, periostitis, &c., or it may be the result of metastatic, of syphilitic, mercurial or serofulous diseases. Necrosis of the bone frequently occurs as the result of deficiency of osseous tissue in the food—hence it is more frequently met with among the poor and ill-fed than others. Wherever necrosis occurs, and whatever cause may contribute to it, exfoliation and discharge of bony matter are its symptoms.

#### TREATMENT.

The general treatment consists in supplying the system with plenty of material for bony tissue, and the thorough cauterization of the diseased bone.

The following compound I have found most effectual as an internal remedy in necrosis.

Take phosphate of lime, one-half ounce; common table salt, one-fourth ounce; carbonate of iron, one-fourth ounce; the white of six eggs; mix the white of eggs, lime, salt, and iron, and add one pint of best port wine. Let the patient take from one-half to one wine glassful three or four times a day. The bowels should be regulated by neutralizing mixture and leptandrin or euonymin, and the surface frequently bathed in lye water. The diet should be nutritious. The practice of giving alterative syrups, with iodine and potassa, in all cases of bone disease, I believe to be fraught with evil; unless there is some abnormal deposit to be absorbed, it should not be practised. The object of the treatment is not to increase the molecular changes of the part by alteratives, but to prevent such ab-

normal changes by the use of tonics and antiseptics. Hence quinine, hydrastin, oil of tar, macrotin, cecasein, pipsisseway, chamomile, poplar bark, balmony, iron, wine and porter, are among the class of remedies to accomplish the desired purpose in necrosis. The bone should be thoroughly cauterized with caustic potassa, or the sulphate of zinc, followed by the fir and zinc ointment, and stimulating liniments of alcohol, oil of hemlock, origanum, amber, sassafras, &c., &c. If the adjacent soft tissue should be inflamed, elm poultices, hot packs, &c., are among the most radical means of subduing it.

## HIP DISEASE, OR MORBUS COXARIUS.

### CAUSE.

The cause of hip disease is the same as of necrosis, of which it is one variety, viz.: falls, dislocation of the hip-joint, bruises of the joint, and serofulous, mercurial or syphilitic taint.

### SYMPTOMS.

Although the symptoms of hip disease are very marked, it is often mistaken for other diseases.

A case occurred in my practice of a little girl who had hip disease, but was treated by an allopathic professor for rheumatism. This mistake arose from the fact that the only complaint the child made, was of pain in the knee.

In this disease the pain is nearly always foreign from the real seat of the disease, hence the patient complains of pain in the thigh, knee, foot, &c. Deformity of the limb is an early symptom, as it will be very considerably turned inward, the knee frequently resting against the other. Very acute pain may be caused in the hip by pressing the thigh bone firmly upwards. The sleep will be disturbed, the bowels irregular, appetite capricious, and in some cases there will be hectic fever and night sweats. The hip will swell, become painful, and entire loss of the use of the

limb will follow. In many cases, the membrane around the head of the bone will become so diseased as to pour out a large quantity of muco-purulent matter, or sero-purulent fluid, filling the joint, and causing the head of the bone to leave the socket, thereby producing still greater deformity, as in this case the limb is not only turned inward, but is very much shortened. In some cases the soft tissues become red, swollen, and inflamed, and suppuration occurs near the point of the disease, while in other cases, the pus, which is formed around the joints, passes along the fascia of the thigh, and makes an opening down the leg. I have attended several cases of hip disease, where in this way a large number of openings were formed along the limb from the hip to the knee. The constitutional symptoms vary according to the nature and cause of the disease. In some cases they are very slight, while in others, night sweats, diarrhœa, hectic fever, &c., are prominent symptoms.

#### TREATMENT.

The most effectual treatment in the early stage of hip disease is very simple. A large irritating plaster should be placed over the entire hip, and caused to remain until a thorough counter-irritation is effected, and a discharge occurs. When the discharge ceases, the plaster should be again applied, and renewed from time to time until the disease is entirely removed. The internal treatment should consist of mild purges, frequent baths, phosphate of lime, salt, iron, and tonic syrups. Where the disease is connected with a serofulous constitution the compound syrup of phosphates, or the syrup of hypophosphites, should be given in two or three drachm doses three or four times a day. Where the disease is more advanced, and the openings have occurred, they should be thoroughly cauterized, and covered with the fir and zinc ointment. The entire limb should be bathed with alcohol four or five times a day, to which is added a moderate quantity of camphor

and oil of hemlock. If there is much swelling, a poultice should be applied, composed of equal parts of slippery elm, pulv. hemlock, and Peruvian bark, after the liniment and over the ointment, and changed as often as necessary to keep the parts moist and the ulcer clean. In many cases the cartilages and ligaments become entirely destroyed by the ulcerating process. In this event the limb should be placed in a natural position, and entire rest absolutely enjoined; as the only hope of a cure consists in inducing a deposit of bony material around the joint, in quantity sufficient to induce ankylosis. This can be accomplished by administering wine, malt liquors, vegetable tonics, chalybeates, and a nutritious diet. The capillaries of the part should be excited and stimulated; for this purpose the hip should be frequently bathed in the following liniment;

R.—Alcohol.....	Oj.
Oil of capsicum,.....	ʒj.
Oil of hemlock,.....	ʒij.
Croton oil, .....	gutt. x.

Mix, and bathe frequently. Also take equal parts of syrup of hypophosphites, and the syrup of chimaphilin, three or four times a day. Dose, one tablespoonful.

If there are open sores with cicatrized edges, they should be injected with solution of sulphate of zinc, and filled with pledgets of lint smeared with zinc ointment. The limb should be thoroughly bandaged, and supported with splints. Where the head of the bone or acetabulum is decayed, the following injection will be found valuable:—take sulphate of iron, one ounce; phosphate of lime, two ounces; water, one pint; dissolve the zinc and iron in the water, and add twenty grains of tannin. Inject with a small syringe three or four times a day. Bathe the limb with an infusion of bitter herbs in alcohol, followed by brisk friction to keep up circulation. As soon as the patient can walk, gentle exercise in the open air should be taken, and a strict course of diet and regimen pursued until entire recovery is effected.

## WHITE SWELLING, OR HYDRARTHROS.

White swelling, in its proper acceptation, occurs most frequently about the middle period of life, but is, however, very often seen in children. There is a difference in its approach in these periods; you will never see a case of white swelling under the age of puberty, without a deviation from health, but not always so when it makes its appearance in after life. Its approach is slow, is accompanied with pain, the patient is only aware of any thing wrong by a stiffness in the motions of the part, and when in the knee-joint, (which is the most common seat of the disorder,) the patient walks badly, with the knee bent.

In this insidious way it may go on for several weeks, but on looking at it, you perceive that the natural points of the joint are obliterated, that it is swollen, and has become more rounded than the sound one, while the natural colour of the integument remains unchanged, as the name of the disease would mark as one of its distinguishing characteristics. In some months, or it may be years perhaps, an abscess forms, and may open near the joint or at some distance from it, even so low as the middle of the calf of the leg, and a quantity of curdy matter is discharged, without at all reducing the swelling of the joint, however; after a time this opening may heal, and another form, which will in its turn continue to discharge.

White swelling of the knee is usually of a chronic nature, but sometimes, as in *morbis coxæ*, it is acute, when it will run its course in as many weeks as in the chronic form it would have taken months to do. In the chronic form, the joint is swollen before any pain is felt, but in the acute case, motion of the limb produces excessive pain before there is any swelling, except perhaps a little fulness from an increased secretion in the joint; the fluid poured out in these cases, does not seem like healthy synovia, but as if a mixture of it and serum.



White swelling might be confounded with other conditions of the joint; sometimes the large bursa above the patella, between the extensor muscles of the leg and the lower part of the femur, becomes inflamed, and fluid is poured out by the sac, and as this bursa often communicates with the general synovial cavity of the knee-joint, it might be mistaken for white swelling of it, but it is very easy to distinguish them; in the case of enlarged bursa, there is no pain in moving the femur and tibia on each other, and if you make the patient extend his leg by the action of its extensors, the figure of the swelling is altered: there will be a hollow made in its middle by the pressure of its muscles and patella. Neither of these will be the case if it be white swelling. Sometimes after using a good deal of exercise, or taking a long walk, there will be a pain in the knee and effusion into the joint. This might be mistaken for white swelling, but the difference in the approach of the two is, that in white swelling the pain comes on long before the effusion, while in the other case they come on together;—there is one great distinction between white swelling of the knee and other diseases of it,—a symptom that never fails to point out the nature of the case clearly, and it is this—in white swelling the flexor tendons of the leg are not prominent as they naturally are, but the hollow in the popliteal space is filled up to their level. In forty-nine cases out of fifty, the position in which you will find the leg is flexed or semi-flexed on the thigh, and lying on the outside, but in the fiftieth case, you will find it extended as straight as possible, and resting on the head, and the patient cries out with pain if you attempt to move the limb; yet put the patient sitting on the right side of the bed, or on a table, and you may not only flex the limb, but swing it backwards like a pendulum, without giving him any uneasiness.

Patients labouring under this disease seldom complain of pain in the part, but rather a sense of uneasiness—a



feel as if it were tired—as if the bones entering into the articulation were not rightly bound together; they have, however, pain in the limb, going upwards towards the abdomen, which they call rheumatic pains, and it is useless to try to persuade them that they are not rheumatic.

There are cases of white swelling met with, where neither the patient nor his friends can assign any reasonable cause for its appearance. Some cases have their origin in exposure to cold or damp apparently, and several are found to come on during convalescence, after fevers of various kinds; some are attributed to the sudden recession of eruptions; but there must evidently be a predisposition to the disease in the constitution or the part, or we must discredit many of the agencies said to induce the affection.

#### T R E A T M E N T .

When white swelling first makes its appearance, by a proper course of medication it may be arrested at once. In the commencement of the disease, bathe the parts in a liniment made as follows:—**R.**—Oil of hemlock, four ounces; dissolve as much camphor gum in it as it will take up, and add 12 drops of croton oil, and three drachms of tincture of iodine. Bathe the limb thoroughly, after which, apply hot cloths wrung from a strong infusion of equal parts of arnica flowers and lobelia; change as often as they grow cool. With each change of the cloths apply the liniment. The patient should take a purge of antibilious physic, followed by a free use of the compound syrup of chimaphilla and phosphate of iron. Take of the compound syrup of chimaphilla, one pint, phosphate of iron three drachms. Dose three or four tablespoonfuls, a day. The patient should be bathed three or four times a week, in strong soda water, and a nourishing diet should be allowed. If this course be adopted, and persisted in, it will arrest the disease in the first stage. But where the disease is farther advanced, and openings are formed into

the bone, the openings should be enlarged by means of caustics and liniment. Ointments and poultices should be applied as directed in treatment of hip disease. The constitution should be well supported by means of tonics and antiseptics. The limb should remain perfectly at rest, and the motion of the joint prevented by means of splints. In an indolent condition of ulcer, and a discharge of sanious matter, inject it with a strong solution of vegetable caustic, then take pulverized *phytolacca decandra*, one ounce; *scrofularia marilandica*, two ounces; pulverized myrrh, two ounces; flax-seed meal, one pound; mix, and wet with equal parts of soda water, and lobelia tincture, sufficient to make a poultice, and apply warm. The poultice should be changed, and the ulcer injected as often as once or twice a day.

Equal parts of Beach's alterative syrup, and the compound syrup of *helianthus*, given in tablespoonful doses, three or four times a day, will be found of much value, in connexion with iron, hydrastin, ampelopsin, and other remedies given as indicated. Where the bone is diseased, it may be treated as already directed in necrosis and hip disease.

## PROLAPSUS ANI, OR FALLING OF THE RECTUM.

Prolapsus of the lower portion of the bowels occasionally occurs in both adults and children, and is caused by weakness of the sphincter and other muscles, produced by costiveness, ascarides of the rectum, dysentery, &c.

### SYMPTOMS.

One of the first symptoms observed of prolapsus ani, is the appearance of a large red tumour, after going to stool. Unless this be immediately returned, it will become painful, strangulated, and will produce obstruction of the bowels, fever, and general constitutional disturbance.

## TREATMENT.

In all cases of prolapsus ani, the first indication of treatment is to return the prolapsed bowels, which can be done by bathing the parts in warm water, and then making gentle pressure upon them upwards, at the same time dashing a handful of cold water in the patient's face. After the parts are thus returned, a pad, wet with a strong solution of oak bark and golden seal, should be applied to the rectum, secured by a T bandage. As soon as this is accomplished, the cause of the difficulty should be ascertained and removed. If it be ascarides or seat worms, an injection of aloes and balmony into the rectum, and a free purge of podophyllin and santonine will usually remove them. If the first injection does not succeed, it should be repeated, followed by injections of cold salt and water, or ice water.

If the muscles of the rectum are weak, the following ointment may be used:

R.--Tannin,.....	gr. x.
Geranin,.....	gr. xx.
White wax,....	℥j.
Glycerin,.....	℥j.

Melt the wax, and mix with the glycerin, and add the tannin and geranin, while it is cooling. Apply to the part four or five times a day. The bowels should be kept regular by the use of vegetables and fruit, and an occasional dose of neutralizing mixture. A case which recently came under my treatment, was cured by covering the prolapsed portion of the rectum with pulverized sanguinaria Canadense whenever it was exposed. Dr. Beach's pile ointment may also be used, or the mild zinc ointment.

## BLEEDING AT THE NOSE, OR EPISTAXIS.

This is a difficulty which frequently occurs about the age of puberty. It also occasionally occurs during the progress of typhoid and other forms of fever. It is very

liable to occur in seasons when fruit and vegetables are scarce, and the blood is in a scorbutic condition.

## TREATMENT.

If the hemorrhage be violent, apply ligatures to the limbs, bathe the head in cold water, and the feet in hot water. If this should not arrest the hemorrhage, give from five to twenty drops of the oil of erigeron every half hour, and inject the nostrils with a strong solution of matico. When the feet are removed from the warm bath, mustard plasters should be applied to them, and also to the back. This treatment has proved successful, when all other resources have failed.

## RED NOSE, OR LIPOMA.

Lipoma is a chronic enlargement of the subcutaneous and cutaneous structure of the nose, presenting a peculiar lobulated appearance, and is usually of a purplish red colour.

## TREATMENT.

Apply a strong irritating plaster until free suppuration ensues, and follow with mild zinc ointment, and allow the parts to heal by cicatrization. Or the tumour may be dissected off, (care being taken not to cut through the nostrils,) allowing the parts to heal by granulation, keeping them covered with ointment.

## NASAL POLYPI.

A nasal polyp is a soft moist tumour of a yellowish colour. Its structure is very nearly identical with that of the mucous membrane, to which it is firmly attached.

## SYMPTOMS.

One of the first symptoms of nasal polypi is the sensation of a stoppage of the nostril, which eventually amounts to a nasal respiration. When this occurs, by inspection a

tumour may be observed in the nasal cavity, of a shining grayish colour. By forcing the breath through the nostril it will be noticed to descend, and the reverse by nasal inspiration. As the polypus grows it will press upon the neighbouring parts, and cause disfiguration of the nose and face.

#### TREATMENT.

In the early stage of polypus it may be removed by snuffing equal parts of pulverized blood-root and matico. If the tumour has become very large, it will be necessary



Fig. 96.

to remove the main body by means of polypi forceps, and afterwards use the snuff to prevent further growth.

To remove the polypi with the forceps, (see fig. 96,) the patient's head should be held by an assistant, and the forceps should be made to grasp the main body of the tumour, when by a twisting motion it should be removed. If there is hemorrhage, it can be arrested by matico.

### HARE LIP.

The cure of hare lip is purely surgical, and can easily be effected by a well conducted operation. The operation for single hare lip consists in neatly paring the edges from one point of the cleft to the other. After which the edges should be brought in apposition, and as many fine hare lip pins inserted as will maintain the parts in their position, when the twisted sutures are applied. At the expiration of 60 or 70 hours, the pins may be removed, and the parts kept in apposition by means of adhesive strips. The operation for double hare lip is the same as for single. During the treatment the patient should avoid violent exercise, and take no food that requires much mastication.

### TUMOURS OF THE GUMS, OR EPULIS.

A tumour of a fibrous character often springs from the periosteum and edges of the alveolus, springing up between and loosening the teeth.

#### TREATMENT.

The treatment consists in an entire destruction of the tumour by means of caustic potassa, followed by a wash of bayberry and hydrastin.

### ABSCESS OF THE ANTRUM HIGHMO- RIANUM.

It frequently happens that from inflammation and other causes muco-purulent matter or pus accumulates in the cavity of the upper jaw.

## SYMPTOMS.

In most cases there is a heavy aching in the cheek bone, pain in the head, swelling of the face, loss of appetite, constipation, and in some cases I have known hectic to arise. If relief be not obtained by exit of the matter, the pain will be throbbing and very excruciating. The swelling will increase, and will present a deep purple colour.

## TREATMENT.

In the first place, any carious tooth in the neighbourhood of the antrum should be extracted. Or if there be no carious tooth, the second molar should be removed, and, most commonly, pus will escape. If it do not, an opening should be made by means of a small drill in the canine fossa through to the antrum. After the matter is discharged, a mild infusion of hydrastin should be injected into the cavity until the discharge ceases. At the same time the bowels should be kept free by means of neutralizing mixture, and other constitutional symptoms treated as they occur.

## ENLARGEMENT OF THE UVULA.

Enlargement and elongation of the uvula are frequent symptoms of scrofula, consumption, and other diseases. When the uvula becomes elongated, it proves very irritating, causes an excessive secretion in the throat and fauces, and sometimes results in inflammation and ulceration.

## TREATMENT.

Elongation of the uvula can usually be remedied by frequently gargling the throat with cold water and the following wash:

R.—Fluid extract rhusin.....	3j.
“ bayberry .....	3ij.
“ water.....	3ij.

Mix, and gargle the throat three or four times a day. Also bathe the throat upon the outside in strong salt and



water. If constitutional difficulties exist, they should receive attention. If, after these means have been used, the uvula still prove troublesome, it may be clipped with a long pair of scissors, or an instrument adapted to that purpose.

### GONORRHOEA.

Gonorrhœa is a disease affecting the urethra, prepuce and glands of the male, and the vulva and vagina of the female. It is accompanied with a discharge of muco-purulent matter. Gonorrhœa is generally considered as a specific, local and contagious disease. That it is a specific and infectious disease, does not admit of a doubt. It is also in a great majority of cases local. Although, in many cases, gonorrhœa, when of long standing and in scrofulous constitutions, affects the fibrous tissues, producing rheumatism, inflammation of the testicles and sclerotica, which are followed by specific symptoms; it also displays itself upon the mucous membrane of the throat and eyes, in the form of chronic inflammation and ulceration, and upon the skin by a specific eruption.

### SYMPTOMS.

In from three to five days after exposure, the male subject will feel an itching and burning sensation along the urethra, with difficult micturation.

On inspection, the mucous membrane of the urethra will appear red and swollen, and, by pressure, a small quantity of muco-purulent matter will be seen to escape. As the disease advances, the difficulty of urinating will be increased, and the discharge will be very profuse. In some cases the disease appears to extend to the prostate, bladder and testicles, in which event the testicles become swollen and very painful, and the difficulty of urinating is aggravated. One of the most troublesome symptoms of this disease is chordee, which consists in the painful erection of the penis at night, with a twist downwards.

In the female, the local symptoms are analogous to those

of the disease in the male, save the chordee. The constitutional symptoms in both male and female consist in the early stage in slight febrile reaction, constipation of the bowels, headache, and derangement of all the secretory and excretory functions.

#### TREATMENT.

In the first stage of the disease, a free purge of podophyllin and cream of tartar should be given. At the same time, the parts should be thoroughly packed with cold or hot water, and mucilaginous injections frequently introduced into the urethra or vagina, as the case may be. To control the inflammatory symptoms after the purge, aconite or veratrum should be given, until the active inflammation is subdued, after which, if the disease is not subdued, specific medication should be given as follows :

R.—Solidified copaiba..... ʒj.  
 Ext. horse radish..... gr. xxx.  
 Nitrate potassa..... gr. xx.  
 Gelsemin..... gr. ij.

Mix, and make thirty pills. Dose, one every three hours. At the same time, the penis or vagina should be injected three or four times a day with the following emulsion :

R.—Gum Arabic..... ʒij.  
 Water..... ʒvj.  
 Sulphur and sugar of lead..... āā. gr. xxx.

Mix, and use for injections three or four times a day.

The following compound has frequently been used to a good advantage :

R.—Balsam copaiba..... ʒj.  
 Sweet spirits of nitre..... ʒij.  
 Oil of cubebs..... ʒj.  
 Emulsion of gum Arabic..... ʒij.

Mix. Dose, tablespoonful four or five times a day.

Where the disease assumes a chronic form, take com-

pound syrup of chimaphilla, six ounces, and iodide of potassa, two drachms. Mix, and give one tablespoonful three times a day.

The following compound has been very highly extolled as a specific in gonorrhœa:

R.—White wax..... ʒj.  
Solidified copaiba..... ʒij.  
White pine gum..... ʒss.

Melt, and form a paste. While it is cooling, add oil of juniper and pulverized cubebs, āā. ʒj. Dose, a pill the size of a pea every two hours. For other compounds, see Formulary. Where the discharge is profuse, equal parts of hydrastin and tannin as an injection, three or four times a day, will be found of much value. Where there is chordee, small doses of camphor and gelsemin will control that symptom. During the entire treatment, the bowels should be frequently opened with mild purges of podophyllin and cream of tartar. The diet should consist entirely of vegetables, and all spirituous and stimulating drinks should be carefully avoided.

In cases where gonorrhœa has become chronic, and the mucus membrane of the urethra becomes softened or granulated, I have been in the habit of applying the following ointment by means of Lalleman's porte caustique:

R.—Argenti nitras.. gr. x.  
Hydrastin..... ʒi.  
Adeps ..... ʒiv.

Mix. Form an ointment, and apply three or four times a day.

## SYPHILIS.

Syphilis, like gonorrhœa, is a disease which arises from sexual intercourse, and is transmitted through the medium of the secretions. It has been divided into different stages, as local or primary, secondary and tertiary.

## SYMPTOMS.

The first symptom of syphilis is the appearance of a chancre, generally, on the genital organs. It usually commences with a little pustule, with a small blister on the apex, which breaks in a few days, and leaves a red abraded surface beneath. The sore, which is at first small, gradually increases in size to a deep rigid-looking ulcer, presenting a great variety of appearances in different cases. It has also received different names, according to its appearance. Thus, it is called simple chancre when its edges are smooth; indurated or Hunterian, when its edges are indurated; the phagedænic, or sloughing chancre, when its edges are ragged and sloughing. There may be one chancre, or there may be a great number. They may be confined to the genital organs, or they may extend to all portions of the body, especially to the nose and throat. In the first instance, unless syphilis is hereditary, it is purely a local affection, but, if allowed to remain for any considerable length of time, the matter becomes absorbed, and secondary or constitutional symptoms appear. This is indicated by buboes or enlargements of the inguinal glands, which present a blue and hard appearance. A large number of copper-coloured spots also appear on the surface. (See plate on skin diseases.) If the disease be not removed, large indolent ulcers appear upon different parts of the body.

In the tertiary form of the disease, the serous and osseous tissues become involved, and syphilitic rheumatism, neuralgia and tertiary ulcers of a most frightful character make their appearance. The digestive organs become impaired, the blood impoverished, and, not unfrequently, tuberculous deposits occur in various organs and tissues of the body.

## TREATMENT.

In primary syphilis, but little more is necessary than effectually to destroy the chancre and to heal the parts by

means of mild dressings. To prevent secondary symptoms, much care should be taken with reference to the kind of caustics. The common practice is to use nitrate of silver. Hence the large per cent. of secondary symptoms consecutive upon primary—nitrate of silver forms an eschar, without entirely destroying the virus, and thus the poisonous matter is absorbed and carried through the system, causing secondary effects.

The pure stick caustic of potassa is the best for this. It should be applied sufficiently thorough to destroy every vestige of the unhealthy portion of the chancre. After which a flax-seed poultice should be applied, and allowed to remain until all portions of the destroyed tissue are sloughed out. It should then be dressed with mild zinc ointment, until it is entirely healed.

During the treatment, the patient should abstain from all fat meats, spirituous liquors, and excesses of every kind. A purge of podophyllin and cream of tartar should be given every twenty-four hours.

If the disease is absolutely in its primary stage, the above course of treatment will effect a cure in a few days.

#### TREATMENT FOR CONSTITUTIONAL, OR SECONDARY SYPHILIS.

The treatment for secondary syphilis is both specific and general.

The general treatment consists in regulating the bowels with mild purges, bathing the surface with alkaline baths, abstinence from stimulating food and drinks, and the observance of rest.

The specific treatment consists in the use of such remedies as exert a specific influence over the disease.

The following remedies may be used to act specifically in secondary syphilis:—Phytolaccin, iridin, iodide of potassa, serofularia, corydalin, chimaphilin, the tincture of kalmia

latifolia, or mountain laurel, citrate of iron, potassa, bromide of potassa, quinine, iron, creasote, hydrocyanic acid, menispermia, muriate of ammonia, ceanothus Americanus, &c. In the commencement of treatment the patient should take a thorough lobelia and blood-root emetic, followed by an active purge of podophyllin, cream of tartar, and sulphur.

R. Podophyllin.....grs. ij.  
 Cream of Tartar.....grs. xxx.  
 Sulphur.....grs. xx.

Triturate, mix, and divide into five powders. Dose, one every two hours until it operates as a purge. Afterwards give the patient a thorough spirit sweat, followed by an alkaline bath. When the system has been thus prepared, one or more of the specific remedies should be given.

R. Compound Syrup of Stillingia.....Oj.  
 Iodide of Potassa.....℥j.  
 Phytolaccin.....℥ss.

Triturate the iodide of potassa and phytolaccin in two ounces of glycerine, then add the syrup, and let the patient take one teaspoonful four or five times a day. After this remedy has been used for one or two weeks, it may be omitted, and the following may be used in its place:—

R. Quinine.....grs. xxx.  
 Citrate of Iron.....grs. xxv.

Mix, divide into ten powders, and let one be taken three times a day, in connexion with five or ten drops of the tincture of kalmia. These remedies may be followed by corydalin, chimaphilin, and citrate of iron.

If there is fine mercurial erythema, as is often the case in syphilis after the old school treatment, the serofularin will remove it. If there are chancres, or syphilitic ulcers, they should be cauterized with nitric acid, and dressed with mild zinc ointment and elm poultices. During the treatment the patient should retire from business, and observe perfect rest. The diet should be mostly vegetable and cool-



ing. When the prominent symptoms have disappeared, a more liberal diet may be allowed. The surface should be frequently sponged, and the bowels kept open.

In the tertiary form of syphilis the treatment does not differ essentially from the above, except that the diet should be more nutritious, and the medication less active.

Where buboes appear, they may be dressed with the following:—

R. Tincture of Iodine.....	℥ij.
Tincture of Arnica.....	℥j.
Tincture of Scrofularia.....	℥ij.

Mix, and apply by wetting pads of linen, which may be secured by means of adhesive strips. If this does not discuss them, they should be caused to suppurate by means of warm elm poultices, and healed by means of mild zinc ointment. Where the bones have become affected, in addition to the above remedy, phosphate of lime should be frequently used in connexion with quinine. Where the patient has been maltreated with mercury, &c., dilute sulphuric and nitro-muriatic acid will be found valuable in connexion with compound syrup of stillingia.

I have cured several cases of the tertiary form of syphilis, that had been mercurialized until it was difficult to decide whether mercurial or syphilitic affection was most prominent, with the following:—

R. Nitro-Muriatic Acid.....	℥j.
Water.....	℥vj.

Mix. Sig.—Forty drops, in one teaspoonful of Compound Syrup of Stillingia, three times a day.

Where the tertiary form of the disease is connected with neuralgia and rheumatism, the following mixture will be found valuable:—

R. Lupulin.....	℥j.
Quinine.....	grs. xx.
Ferri Hypo Phosphite .....	℥j.
Hydrocyanic Acid.....	gutt. xx.
Syrupus Simplex.....	℥vj.

Sig.—One teaspoonful every two or three hours.

The strength of the patient should be well supported; fresh air and cheerful company will also facilitate the cure.

### CASUALTIES.

Life, when to all appearance lost, may often, by due care and energetic attention, be restored.

Accidents frequently prove fatal, merely because proper means are not used to counteract their effects. No person should be regarded as killed by accident or injury, unless some vital organ or structure be injured to such an extent as to be incompatible with life. The vital organs may be so diseased as to very much disturb their functions, or, for the time, to entirely suspend them—yet, in many cases, by proper means, these functions may again be restored, and the life of the patient saved. Hence, in all cases where the faintest hope of life remains, every means should be used to restore it.

### APNŒA, OR ASPHYXIA.

Apnœa, or asphyxia, is caused by a stoppage of circulation through the pulmonary capillaries. The more common causes of this affection are the inhalation of carbonic acid gas, the immersion of the body under water, or drowning, the inhalation of chloroform,—in short, all non-oxygenized substances which will not support combustion, will cause asphyxia. It may also be produced by large doses of opium, and other narcotics, by pressure on the brain, injuries of the spine, extreme cold, frights, convulsions, and in fact, anything which may interrupt the circulation of blood through the heart and lungs.

### TREATMENT.

The treatment of asphyxia depends much upon the cause, which should be removed, so far as possible. At the same time, the body should be kept warm by means of hot flannel, frictions, &c.; and the bowels should be injected with

warm water, and artificial respiration produced and continued so long as the slightest prospect of resuscitation remains.

Artificial respiration may be produced by applying the mouth to one nostril, while the other is closed, at the same time making pressure on the thyroid cartilage backwards and downward, so as to close the œsophagus and allow the atmospheric air to penetrate the bronchia and lungs. As soon as the lungs are filled, gentle pressure should be made upon the sides, until the air is expelled. Hot mustard pastes should be applied to the spine, and the patient exposed to a current of pure air. In case of asphyxia from drowning, Dr. Marshall Hall's method is as follows:—

“1st. Treat the patient instantly on the spot, in the open air, freely exposing the face, neck, and chest to the breeze—except in severe weather.

“2d. In order to clear the throat, place the patient gently on the face, with one wrist under the forehead, that all fluid, and the tongue itself, may fall forward and leave the entrance into the windpipe free.

“3d. To excite respiration, turn the patient slightly on his side, and apply some irritating or stimulating agent to the nostrils, as veratria, dilute ammonia, etc.

“4th. Make the face warm by brisk friction, then dash cold water upon it.

“5th. If not successful, lose no time, but, to imitate respiration, place the patient on his face, and turn the body gently but completely on the side, and a little beyond, then, again, on the face, and so on alternately. Repeat these movements deliberately and perseveringly fifteen times only in a minute. (When the patient lies on the thorax, this cavity is compressed by the weight of the body, and expiration takes place. When he is turned on the side, this pressure is removed, and inspiration occurs.)

“6th. When the prone position is resumed, make a uni-

form and efficient pressure along the spine, removing the pressure immediately before rotation on the side. (The pressure augments the expiration; the rotation commences inspiration.) Continue these measures.

“7th. Rub the limbs upward with firm pressure, and with energy, (the object being to aid the return of venous blood to the heart.)

“8th. Substitute for the patient’s wet clothing, if possible, such other covering as can be instantly procured—each by-stander supplying a coat or cloak, etc. Mean time, and from time to time, to excite inspiration, let the surface of the body be slapped briskly with the hand.

“9th. Rub the body briskly till it is dry and warm, then dash cold water upon it and repeat the rubbing.”

“If the weather be very cold, and the situation exposed, it will be obvious that throughout these measures a tolerable shelter should, if possible, be secured, and in extremely cold weather it may be necessary to perform the rubbing and rotating movements with the body loosely covered with dry blankets, coats, or something of the kind.”

Avoid the immediate removal of the patient, as it involves a dangerous loss of time—also, the use of bellows, or any forcing instrument—also the warm bath, and all rough treatment.

## CANCERS, OR MALIGNANT TUMOURS.

Cancer usually presents itself in four or five varieties; each variety possessing characters peculiar to itself, viz., scirrhus or hard cancer, encephaloid or soft cancer, colloid or gelatinous cancer, melanosis or black cancer. (Fig. 97 shows the arrangement of fibrous cancer-cells, as they occur in the female breast. Fig. 98 shows the same, after the addition of acetic acid. Fig. 99 shows the isolated cancer-cells from the same growth. Fig. 100 shows the same, after the addition of acetic acid.)

The scirrhus variety is hard, firm, and transparent, and

of a grayish colour. The encephaloid is brain-like in its appearance, and is of a soft and hemorrhagic character. The colloid resembles glue, or honey in the comb. The melanosis is of a black colour, and is sometimes soft, and at others hard. Another variety of cancer is mentioned by some authors, called epithelial cancer.



FIG. 97.

FIG. 99.



FIG. 100.

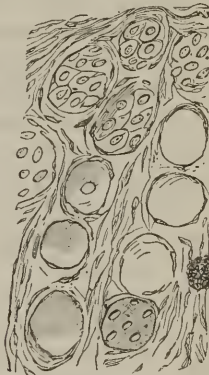
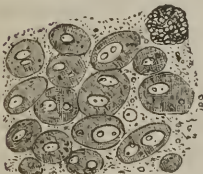


FIG. 98.

These various forms may exist separately, or one variety may be associated with, or take the place of another. Thus encephaloid may take the place of scirrhus, or colloid; melanosis, scirrhus, and colloid, may exist in the same tu-

mour. The microscopic character of all these different varieties is essentially the same.

They all yield, by pressure, a turbid fluid, called cancer-juice, in which are granule cells, pigmentary and fatty matter. The cancer cells are spherical, fusiform, and spindle-shaped, elliptical or caudate, having two or three terminations.

Mr. Bennett remarks:—"The so-called *cancer-cells* may be round, oval, caudate, spindle-shaped, oblong, square, heart-shaped, or of various indescribable forms, produced by pressure on their sides. In size they vary from the  $\frac{1}{1200}$ th to the  $\frac{1}{400}$ th of an inch in diameter. The cell wall, when young, is smooth and distended; when old, it is more or less corrugated and flaccid. Each cell contains at least one nucleus, often two, and sometimes as many as nine. Most commonly there is only one, which is round, or more generally oval, and contains one or two granules, or nucleoli. The nucleus also varies in size, and may occupy from one-sixth to four-fifths of the volume of the cell. Between the nucleus and the cell-wall there is a colourless fluid, which, at first transparent, becomes afterwards opalescent, from the presence of molecules and granules. On the addition of water, the cell becomes distended by endosmose, and is enlarged. When acetic acid is added, the cell-wall is rendered more transparent, and in young cells is entirely dissolved, whilst the nucleus, on the other hand, either remains unaffected, or its margin becomes thicker, and its substance more or less contracted."

The crasis, or condition of the blood which exists in cancer, consists in the preponderance of albumen, and an excess of fat. And it is evident that the development of cancer is owing to perverted nutrition, that the healthy blastema as it escapes from the capillaries, by some local influence, instead of forming healthy tissue, contributes to the development of this unhealthy product.

The cause of this prevented cell-growth is doubtless the



result of an injury inflicted upon the part where the future cancer makes its appearance. This injury may be mild, pressure producing a deformity of the healthy cell, which deformity is transmitted to the nucleus, and to all the cells that are developed from it. Thus, a series of irregular cell developments, results in that heterologous tissue, known as cancer. The injury inflicted may be violent, producing speedy irregular cell development, or it may be gradual, and the cell-growth only approximating to that abnormal structure, which by degrees assumes a real malignant character. All the facts yet observed relative to the nature and history of this disease warrant this explanation; as all cases of primary cancer occur on such organs as are liable to such injuries, besides, in a large majority of cases, the cancer development may be traced directly to this cause.

Also, the unsuccessful treatment of cancers by the use of the knife, and the successful treatment, by a long continued course of sloughing and caustic applications, most conclusively proves that, so long as one single, irregular, or nucleated cancer cell remains, so long will the cancer development continue.

Secondary cancers may be developed by the absorption of these cells, and their transmission through the lymphatics and blood vessels, to the organs and tissues, far from the primitive development. Thus, cancer of the lungs, &c., may be developed from cancer cells, formed in the breast or face. Next to the female breast and uterus, the cancers most common, are 1. the face; 2. the stomach; 3. large intestines; 4. retro-peritoneal cancer in front of the spinal column; 5. hepatic; 6. bone cancer; 7. cancer of the skin and lips; 8. brain; 9. globe of the eye; 10. testes; 11. ovaries; 12. kidneys; 13. tongue; 14. œsophagus; 15. salivary glands and parotids.

## SYMPTOMS.

A small hard tumour most frequently in the breast is the first indication of scirrhus cancer. It is at first movable and unattached to the integument, but eventually forms deep and superficial attachments. It grows slowly—is irregular in shape, and painful. The pain is mostly sharp, and lancinating, and is much increased on pressure.

In the course of time, the tumour absorbs the tissue beneath the skin, and becomes attached to it, which presents a bluish nodulated appearance. Ulceration usually takes place by the skin becoming absorbed. As the sloughing proceeds the edges become ragged and everted, having a bluish purple colour. The ulcer discharges a fetid sanious pus.

Encephaloid or soft cancer is more frequently met with in the globe of the eye, testes, nares, &c. It commences as a soft, elastic, lobulated tumour, having a semi-fluctuating feel. The skin covering it is loose, and covered with large dilated veins. It attaches itself to the integument, and ulceration occurs.

In some cases a mass of fungous flesh called fungus hæmatodes is thrown up from the tumour, which bleeds profusely. The lymphatic system soon becomes involved, and general constitutional disturbance is always an early symptom in this form of cancer.

Colloid or gelatinous cancer usually occurs in the internal viscera, although it occasionally occurs in the superficial tissues. It consists of cysts filled with a gelatinous semi-transparent fluid. Melanosis or black cancer occurs in the form of dark pigmentary matter, mostly upon the serous membranes. When ulceration occurs, a dark sanious matter is discharged.

## TREATMENT.

The treatment of cancer is both constitutional and local. In the incipient stage it consists in radical extirpation of

the diseased mass, either with the knife or caustics, and the sloughing process. For the purpose of removing the tumour, apply an ointment made as follows: Take the expressed juice of fresh pokeweed or *phytolacca decandra*, *rumex crispus* or yellow dock, and blood root or *sanguinaria Canadensis*, equal parts. Evaporate the juice by means of a sand bath to the consistency of tar. Remove the cuticle over the tumour by means of blister plaster, and apply the ointment, renewing the application two or three times a day, washing the part each time with the best French brandy. This should be continued until the eschar involves the entire tumour, when a poultice should be applied, made in the following manner: Take pulverized indigo weed, or *baptisia tinctoria*, Peruvian bark, and slippery elm, equal parts, moisten with brewer's yeast, and apply, changing several times a day, until the dead mass is entirely sloughed out, washing with the brandy before each application. If there is appearance of any portion of the cancerous tumour remaining, renew the application of the ointment, washing with brandy, and followed by the poultice. During the local treatment, the patient should abstain from the use of fats and animal albumen, the diet consisting mostly of nutritious vegetables, fruits, &c.

The surface should be freely bathed daily, and the patient allowed free exercise in the open air. When the cancer tumour is entirely removed, a mild sloughing of the parts should be produced by the use of the following ointment. Take sulphate of zinc, one ounce, balsam of fir, five ounces, white wax, one ounce. Melt the wax and balsam together, and while cooling, add the zinc finely pulverized, also, add thirty drops of creasote. Apply the zinc ointment in connexion with brandy, washing in quantity and frequency, sufficient to keep up a mild discharge, until every vestige of unhealthy growth disappears. In ordinary scirrhus cancer, if removed before suppuration occurs, it will usually suffice to continue the zinc ointment, for two

or three weeks. In cases of open cancer, where the cancer cells may have been absorbed, and passed into the blood, in addition to the above local treatment, a thorough course of constitutional medication will be required, consisting mostly of tonics and antiseptics, tonics for the purpose of maintaining the integrity of the constitution, and antiseptics and alteratives to prevent the formation of cancer cells in other tissues, and to remove any detached cells that may be circulating in the blood. Among the best tonics are hydrastin, ceraccine, chamomile, pyrophosphate of iron, &c. These may be given in alternation or combinations, and in such quantities as may be deemed expedient, to maintain the strength of the patient. The following compound will be found a valuable one for this purpose. Take *hydrastis Canadensis* or golden seal, English chamomile, and *chima-philum umbellata*, or *pipsisseway*, of each one ounce; pulverize, and add to one quart of good port wine. Give one wine glass full three or four times a day.

To prevent the growth of absorbed cancer cells, the following compound will be found valuable: Take oil of tar, two ounces, hydrocyanic acid, ten drops: mix and let the patient take from ten to fifteen drops, four or five times a day. To remove the crasial condition of the blood, the compound alterative syrup in connexion with iodide of potassium, or the compound syrup of *stillingia*, may be used in quantity as indicated. If the caustic application recommended do not prove sufficient to remove the tumour, the following application may be used. Take sulphate of iron, one ounce, add sulphuric acid sufficient to make a paste of the consistency of cream. Surround the tumour with a plaster of white wax, and apply the paste to the tumour, allowing it to remain until a deep eschar is formed. If the first application be not sufficient, repeat it two or three times a day, until the eschar involves the entire tumour. The wax plaster is applied to prevent the caustic from injuring the integuments surrounding the tumour. After the life

of the tumour is sufficiently destroyed, it may be sloughed out, as recommended in the first instance. A variety of other caustic preparations used for the purpose of removing cancerous tumours, may be found under the head of pharmacy.

The object, however, of all these applications is to remove the diseased mass in such a way as to effectually prevent the absorption of cancer cells. The reason why caustics are more successful than extirpation by the knife is, that during the operation with the knife, the cancer cells are liable to be penetrated, and conveyed to the surrounding tissues, and from thence to the blood, forming new cancer cell growth in other parts of the body, while the caustic destroys the cell at once, and thus absorption is prevented.

The above plan of treatment applies equally well to all varieties of the disease, although in some forms where the cancerous discharge has produced much exhaustion, a more nutritious diet should be allowed. That this treatment will prove successful in a large majority of cases of early cancer, if space would permit, the most ample testimony could be given.

#### TREATMENT OF CANCER OF THE UTERUS.

To treat cancer of the uterus, a large-sized glass speculum should be introduced into the vagina, and so adjusted as to entirely cover the portion of the uterus affected. Then apply with the probang a moderately strong solution of vegetable caustic or of sulphate of zinc, allowing it to remain for several minutes, then removing it, apply a thick mucilage of slippery elm, filling the speculum. After which withdraw the speculum, and allow the elm poultice to remain in the vagina, and if necessary secure it by a T bandage. This application should be continued until all traces of the disease are removed. Afterwards the parts should be dressed with very mild zinc ointment, and frequently cleansed by the use of antiseptic washes. The con-

stitutional treatment should be the same as in other forms of cancer.

### TUMOURS.

The operation for the removal of tumours consists in making an incision, rather too long than too short through the skin and cellular tissue, and dissecting out the tumour by separating its cellular adhesions. If the tumour is attached to the skin, two elliptical incisions should be made, and such portions of the skin as adhere to it should be removed with the tumour. After the removal of the tumour, the bleeding vessels should be secured by a ligature, and the edges of the wound brought together and secured by adhesive strips.

*Disease of the Muscles, Tendons, and Bursæ.*—The muscles may become rigid, producing various deformities and displacements of the joints and limbs. Thus, a long continued disease of the knee may result in a permanent contraction of the flexor muscles of the leg.

### TREATMENT.

Contracted muscles may be relieved by bathing, friction, and electricity. A very good liniment for this purpose is the following:

R.—Oil of Lobelia,.....	℥j.
“ Hemlock,.....	℥ij.
“ Olives.....	℥j.

M. and apply with a great deal of friction, three or four times a day. If this should not succeed in removing the deformity, galvanic currents may be passed through the limb once or twice a day. If these means should fail, some of the extension splints should be applied, and the leg put upon a stretch.

### RUPTURE OF THE MUSCLES AND TENDONS.

Violent exertions sometimes result in rupture of the muscles and tendons. These injuries are best treated by



perfect rest and such measures as will subdue the inflammatory action.

### ANCHYLOSIS.

Anchylolosis or immobility of the joint is a disease which frequently results from violent injuries and disease of the parts. It is best treated by stimulating liniments, brisk friction and local steam baths.

### INJURIES OF THE SPINE.

Lateral curvature of the spine presents many varieties, and may be caused by debility of the muscles, or by disease of portions of the spinal column.

#### SYMPTOMS.

Elevation of one shoulder, a projection of one of the scapulas, and, on examining the spine, it will be found to present a curvature.

#### TREATMENT.

Attention should be paid to the position of the patient; the spine should be frequently bathed in stimulating liniments, and from one to two teaspoonfuls of the compound syrup of hypophosphites given two or three times a day, in connexion with vegetable tonics. The patient should indulge in plenty of out-door exercise, and the diet should be nutritious. In some cases benefit may be derived from the use of shoulder-straps or other support to the abdominal muscles.

#### POTT'S CURVATURE OF THE SPINE.

Pott's curvature of the spine consists in an angular curvature produced by caries of the body of the vertebræ, or ulceration of the inter-vertebral substance. It is mostly confined to scrofulous children. It begins with weakness, and symptoms of spinal irritation, coldness of the extremities, twitching and spasm of the legs, which is frequently

followed by palsy. If the disease is confined to the dorsal vertebræ, there will be tightness of the chest and difficulty of breathing. If to the cervical, one or both arms may be paralyzed.

#### TREATMENT.

Rest and horizontal posture is indispensable in the treatment of this disease; and the back may be supported by a bandage as represented in fig. 101. An irritating plaster



Fig. 101.

should be applied over the diseased portion, and caused to maintain a discharge for several weeks. The body should be bathed once a day in alkaline water, followed by friction, and from one to two tablespoonfuls of the syrup of rock rose; or the compound syrup of frost work should be given in combination with one or two grains of ferri-hypophosphite and soda hypophosphite, two or three times a day. The occasional use of quinine, hydrastin, and chimaphilin, will also be found beneficial.

## PSOAS ABSCESS.

Psoas abscess most commonly occurs in the early period of life, and is mostly connected with diseases of the spine, and confined to scrofulous constitutions. It is developed either in the sheath or psoas muscles, and is preceded by rigors, chills, lumbago, and general constitutional debility. It generally presents itself below Poupart's ligament in the form of a tumour while the patient is in an erect posture, which disappears upon lying down.

The treatment for psoas abscess is that which is recommended under the head of chronic abscess.

## TREPHINING AND PARACENTESIS.

Trephining may be required for fracture of the skull, with depression of the bone, for accumulation of blood under the skull; for suppuration of the dura mater; and for diseases of the skull producing epilepsy, &c. The instrument used for this operation is called a *trephine*, (fig. 102.) The scalp should be shaved, and an incision in the

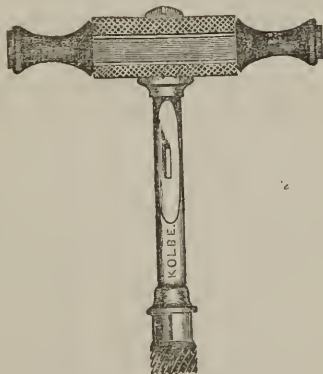


Fig. 102.

shape of a V or T, and the perieranium shaved off from the part of the skull to be perforated. The trephine is

then applied, the centre pin forced into the bone sufficient to steady it, when it should be worked with an alternate pronation and supination of the wrist, until a sufficient groove is made so that the saw will work steadily. Then the centre pin should be removed. He then saws on steadily and cautiously, pausing frequently and examining the groove with a probe, to see whether it has reached the dura mater. When it has, he introduces the elevator and removes the circular piece of bone.

### PARACENTESIS CAPITIS.

This operation has been resorted to in some desperate cases of hydrocephalus. The operation consists in introducing a fine trochar perpendicular to the surface into the anterior fontanel. When the fluid has been withdrawn the head should be supported with a properly adjusted bandage. The constitutional treatment should be that which is recommended in another part of the work.

### PHYMOSIS.

Phymosis is a stricture caused by the rigidity of the internal membrane of the prepuce, so that the coronary gland cannot be uncovered. This obstruction prevents washing the secretions from the corona glandis, thus subjecting the patient to balanitis and gleet, and in the advanced age to cancer.

### T R E A T M E N T .

Phymosis may frequently be relieved by wrapping a hot pack around the glans penis, and by compressing the gland so as to press the blood from the capillaries of the gland, and then forcing the prepuce back. If this does not succeed, the prepuce should be drawn as far on to the gland as is convenient, and by means of a sharp-pointed bistoury the mucous lining should be divided at several points.

## PARAPHYMOSIS

is said to exist when the prepuce is confined back of the glans, causing it to swell, &c.

## TREATMENT.

Attempts should be made to reduce it as in phymosis. If unsuccessful, the points of stricture should be divided with a bistoury.

## ORCHITIS, OR INFLAMMATION OF THE TESTES.

This disease may be caused by injuries, but is more frequently the result of badly treated gonorrhœa. The symptoms are, swelling, great tenderness and pain.

## TREATMENT.

Hot packs, purges of podophyllin, and apocynin, followed by veratrum.

## CASTRATION.

This operation is performed by first shaving the scrotum, then grasping the testicle with the hand, and stretching the skin upon the testicle. Then make an incision from the external abdominal ring to the lower border of the scrotum. Then dissect the cord from the cellular tissue, and let an assistant hold it between his fingers, so as to prevent it from retracting. The bistoury should now be passed under the cord and by gentle motion divided. Seize the lower portion of the cord, and by a few sweeps of the knife, relieve the testicle from its cellular attachment. The artery should now be secured by a ligature, the integument brought together, and secured in the ordinary way. Cold water dressings are all that is required. Where the testicle is very large, two elliptical incisions should be made so as to remove portions of the scrotum.

## HÆMATOCELE.

Hæmatocele signifies an extravasation of blood into the tunica vaginalis. It may be treated as hydrocele.

## VARICOCELE, OR SPERMATOCELE,

signifies a varicose state of the veins of the spermatic cord. It may usually be cured by laxatives and purgatives, a suspensory bandage, and a wash of dilute, muriated tincture of iron. The irritating plaster has also been applied and afforded relief in some instances. Tying the veins and destroying them with potash has also been resorted to for the cure of this disease.

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CONTRACTIONS AND RETRACTIONS  
OF MUSCLES AND FASCIÆ.

Under this head are included a variety of deformities, such as wry neck, squint, club-foot, and club-hand. These diseases are all dependent upon certain conditions of the muscles, which may be caused by a faulty position of the limb, or by irritation of the nervous system, which may produce deformity in the muscles by deranging the function of counter groups of muscles. These deformities we see in fascial palsy, strabismus, &c. Peripheral, nervous irritation may also produce deformities.

## TORTICOLLIS, OR WRY NECK.

Under this head are included all the deformities of the head caused by a contraction of the muscles. For the relief of these deformities, division of the muscles producing the deformity has been resorted to with entire success. In the case of a boy, where the head was drawn to the left side, the ear resting on the left shoulder, connected with the lateral curvature of the spine, Dr. Warren found the sternomastoid muscle of the left side to be the one producing the deformity, for which the Doctor performed the following

## OPERATION.

The head being well supported and carried a little forward, so as to throw the muscle outward from the subjacent parts, a puncture was made with a lancet through the skin about six lines above the clavicle, between the sternal and clavicular origins of the muscle. A narrow, blunt-pointed knife (Bouvier's) was then introduced, with its flat side towards the muscle, carried behind the sternal origin, its edge turned towards the muscle, and the section completed by a slight sawing motion, the effects being indicated by a distinct cracking sound, and by the partial restoration of the head to its natural position. The little wound in the skin being then closed by plaster, a cap was placed on the head, to the back of which, opposite the right mastoid process, was attached a strap, which, being drawn tight, was secured over the breast of the same side. A stiff stock was also subsequently added to the dressing, and, in the course of a fortnight, a great change in the position of the head was perceptible, though it yet remained somewhat inclined to the left, the clavicular origin of the muscle having become more prominent since the division of its sternal attachment. To remedy this, it was, therefore, decided to divide the clavicular origin also, which was accomplished as follows:—The head being well supported, and the muscle sufficiently relaxed by inclining it to this side, the body of the muscle, just below the union of its two origins, was readily seized between the thumb and fingers, and completely isolated from the subjacent parts. A sharp-pointed knife was then carried beneath the muscle, until it could be felt under the skin by the finger on the opposite side, when the patient being directed to contract the muscle, its section was readily accomplished. In forty-eight hours the wound was healed, and nine months after the operation the patient's appearance was so much improved that his former friends could scarcely recognise him.

Although the contraction of the sterno-mastoid muscle is



more frequently the cause of wry neck than that of any other, yet in some cases the trapezius is at fault, and has to be separated in the same way as the sterno-mastoid.

#### SQUINTING, OR STRABISMUS.

Squinting may be convergent or divergent. In the convergent form one eye only is usually affected; and in the divergent form, sometimes, but not always, both eyes.

#### CAUSES.

It may be produced by spasms, scarlatina, measles, intestinal worms, paralysis of the motor nerves of the eye, and inflammation of the conjunctiva and eyelids.

#### TREATMENT.

The treatment for strabismus must depend upon its cause. The cause being removed by proper remedies, if deformity still exist, it must be removed by an operation.

#### OPERATION.

Bandage the sound eye, then direct the patient to look outwards with the affected one. Then seize a portion of the conjunctiva, near the inner canthus, with forceps, and separate it transversely with sharp-pointed seissors. Continue this dissection until the tendon of the internal rectus is exposed, which may be seized with the forceps and cut across; or a sharp-pointed director may be passed under the tendon, elevating it and clipping it with the seissors. During the operation the eyelids should be held apart and firm by an assistant. The wound should be dressed by a small pledget of lint, dipped in cold water, and moistened; the patient being kept quiet, and secluded from strong light for several days.

## CLUB-FOOT, OR TALIPES.

Four varieties of Talipes are recognised:—Talipes Equineus, in which the heel is elevated, (fig. 103;) Talipes Cal-

FIG. 103.



caneus, (fig. 104,) in which the anterior part of the foot is drawn up. This is a very uncommon variety of club-foot; and, when it occurs, is almost always congenital. In order to relieve this deformity, the tibialis anticus, the extensor communis, the extensor pollicis, and the peroneus tertius, may all require to be divided; after which a straight splint should be applied, and the foot brought down to it. For the cure of talipes equineus, the tendo-Achilles should be divided about an inch above its insertion into the os calcis. The foot should be grasped, and the surgeon extend it until the tendon is tense. He then slides a tenotomy beneath it, and cuts slowly through it, from beneath upwards, bear-

FIG. 104.

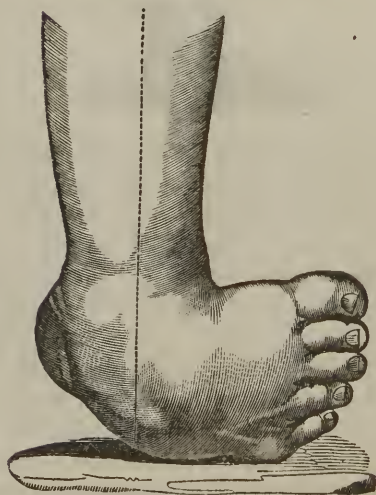


FIG. 105.

ing the foot up at the same time. Some prefer to cut from without inwards. In this event much care should be taken, or the posterior tibial artery may be wounded. As soon as the operation has been performed and the pain will warrant it, some of the modern instruments, as Scarpa's shoe, should be applied, and the foot maintained in its normal position until the deformity is entirely overcome.

#### TALIPES VARUS.

(Fig. 105.) This is one of the most common forms of club-foot. The foot is turned inwards, and the patient walks on the outer side of the foot. To remedy this de-

FIG. 106.



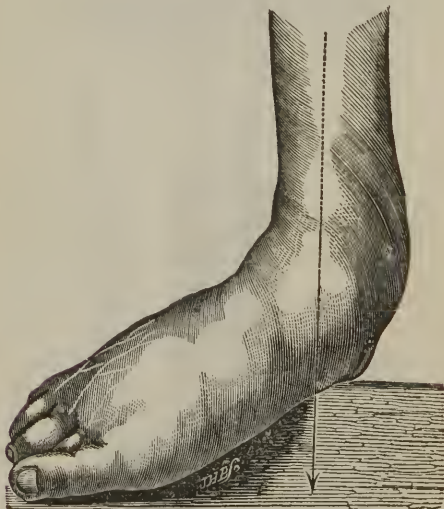
formity, the tendo-Achilles, the tibialis anticus and posticus, and plantar fasciæ, require division. In dividing the

tibialis postieus tendon in the sole of the foot, much care will be required to prevent wounding the posterior tibial artery, which lies close to it. The best way will be to introduce the *ténotome*, (fig. 106,) through the sheath of the tendon directly downwards, and separate it forwards away from the vessel. After the operation, and the inflammation removed two or three days, the foot may be well abducted by means of splints, or a little shoe. Mr. Mütter recommends an apparatus prepared by H. K. W. Boardman, of Connecticut. The only use of these appliances is to keep the foot properly abducted, and in an easy position.

#### TALIPES VULGUS.

(Fig. 107.) In *talipes vulgus* the foot is turned out, and the patient walks on the inner ankle.

FIG. 107.



The treatment consists in dividing the tendons of the peroneus longus and brevis behind the outer ankle, and

that of the extensor communis on the dorsum of the foot. An instrument should be applied, and the foot brought into position and supported.

#### WEAK JOINTS.

The ankle and knee joints may become weak and deformed in serofulous and rickety children. They can be remedied by proper constitutional and temporary apparatus which supports the part.

#### CARTILAGE IN THE JOINTS OR BURSÆ.

Loose cartilage may be found in the joints or bursæ. They can be felt when they present themselves to the surface; and when they get between the bones, they produce sudden and excruciating pain, which is followed by inflammation. They occur by first being formed on the synovial membrane, and afterwards becoming detached. If it become troublesome, it should be removed by pushing it to the upper part of the joint, on one side of the patella, and held against the condyle of the femur; the skin being drawn slightly upwards, an incision is made down to the cartilage by letting it escape. Mr. Syme proposes to introduce a narrow-bladed bistoury through the integument, a distance below the cartilage, and carrying it up under the skin, under the point where the incision is to be made in the synovial membrane, and puncturing it sufficiently to allow the cartilage to escape. The cartilage should then be squeezed out, and allowed to remain in the cellular tissue until the wound in the membrane is healed, when it should be removed by making an incision through the integuments. In this operation, every precaution should be observed to prevent inflammation, and the limb kept perfectly at rest.



MASTURBATION, SPERMATORR-  
RHŒA, AND NYMPHOMANIA.

It can hardly be denied that there are few diseases that are more prevalent or pernicious in their effects than those embraced in the above caption. There is scarcely a practitioner of any considerable experience and observation who has not observed the frequency in which masturbation has led to spermatorrhœa and nymphomania, with all their terrible consequences. From the silence which has been observed by medical writers and teachers relative to these diseases, and the extensive practice of it at this period, we infer that either the subject has been grossly neglected, or that masturbation is alarmingly on the increase. The practice of self-pollution, when at first resorted to, has but slight impression upon the constitution, but, if continued for a few months, or years, at last, it produces not only an abnormal condition of the sexual organs, which results in nymphomania or spermatorrhœa, but affects the nutritious functions, and lays the foundation for scrofula, phthisis, and insanity, besides so enfeebling the general forces of the body as to predispose the sufferer to many other maladies.

## SYMPTOMS.

The symptoms of masturbation are, physical and intellectual debility, irritable and vacillating disposition, dyspepsia, constipation of the bowels, dry and husky skin, scanty and high-coloured urine, cold hands and feet, and an irregular and capricious appetite. If the male abandons this practice in this condition of the system, it will soon be followed by involuntary discharges of semen. At first this will occur at night during lascivious dreams, but in time they will occur during defæcation and micturition. In this event there will be atrophy of the testicles, cold and shrivelled condition of the penis, together with impotency. Or if the impotency is not complete, the erections of the

penis will be feeble, and almost immediately followed by emissions. In the female, where the praetice is abandoned, there will be an irritability of the nervous system, a tendency to irregularity of the menses, leucorrhœa, prolapsus uteri, and, in many cases, frequent ovarian excitement and discharges of the ovule. If the disease be protracted, the parts become weak, relaxed and cold, and the patient averse to sexual indulgence.

#### S P E R M A T O R R H Œ A A N D N Y M P H O M A N I A .

As we have already remarked, these affections are more frequently than otherwise the result of masturbation, although there are other causes which may produce them, such as hemorrhoids, prurigo labialis, constipation of the bowels, stricture of the urethra, gravel, excessive venery, long indulgence in spirituous liquors, and hereditary predisposition.

#### T R E A T M E N T .

The treatment for masturbation consists in abandoning the praetice; and, for spermatorrhœa and nymphomania, in carefully studying the disease, ascertaining its cause, and, so far as possible, removing it. If dependent on masturbation, the praetice should be abandoned; and if the patient be a male, he should be ordered aperient medicines to keep the bowels regular. The habits and diet of the patient should be well regulated, and all sexual excitement avoided, as far as practicable. If the parts are weak, the following compound will be found efficient:

R.—Tinct. nux vomica.....	3j.
Tinct. cantharides.....	3ss.
Ferri hypo-phosphite.....	3j.
Simple syrup.....	3vi.

Sig. One teaspoonful three or four times a day. If this remedy should fail, one spermatorrhœa pill should be given night and morning, and the patient ordered to lie

upon his side, or a hard mattress, and take an ice-water enema each night before retiring.

Where the disease is dependent upon ulceration or weakness of the ejaculatory duct, or upon irritation of the prostatic portion of the urethra, it should be cauterized by means of Lalleman's porte caustique, armed with nitrate of silver. If the seminal emissions should still continue, gelsemin in sufficient quantity to produce constitutional effects may be administered every night. In some cases of a very obstinate character, I have found an irritating plaster, applied to the cervical portion of the spine, and the following mixture, to afford relief:

R.—Tinct. ergot.....	℥j.
Tinct. gelsemin.....	℥ss.
Simple syrup.....	℥iv.

M. Sig. One teaspoonful twice or three times a day. The diet should be nutritious, and baths be taken daily.

The treatment for nymphomania does not differ essentially from that of spermatorrhœa, with the exception that the clitoris, instead of the urethra, should be cauterized in bad cases, the strength of the patient supported, and uterine tonics and anti-periodics administered. The constitutional derangement of these affections should receive especial attention, and every effort be made to restore the system to its normal condition.

## PART III.

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### OBSTETRICS, AND DISEASES OF WOMEN AND CHILDREN.

OBSTETRICS, (from *obstetrix*, a midwife,) is that branch of science which treats of the genital organs of the human female.

PARTURITION, (from *parturio*, to bring forth.) The term is used to designate the act by which the child is introduced into the world.

OBSTETRICAL ANATOMY concerns the pelvis, its contents, and the organs of generation.

#### THE PELVIS.

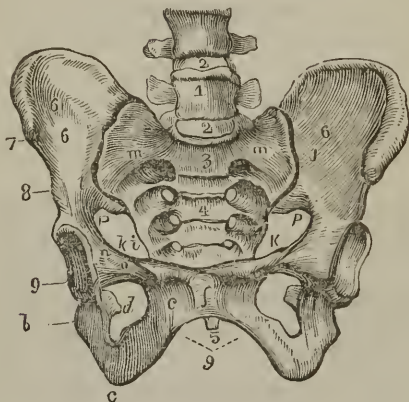
By the Greeks it was denominated *πελvis*; by the Romans, *pelvis*; the Italians call it *il bacino*; the Spaniards, *la pelvis*; the French, *le bassin*; the Germans, *das beckens*.

The pelvis is situated usually about the middle of the body, and is an irregular conical cavity. It contains and protects the abdominal viscera, and affords means of connexion between the superior and inferior portions of the body. It is also the origin and insertion of muscles. (See Fig. 108.)

(*Explanation of Fig. 108.*—1. Last lumbar vertebra. 2 2. Intervertebral substance connecting the last lumbar vertebra with the fourth and sacrum. 3. Promontory of the sacrum. 4. Anterior surface of the sacrum, on which its transverse lines and foramina are seen. 5. Tip of the

coceyx. 6 6. Iliac fossæ, forming the lateral boundary of the false pelvis. 7. Anterior superior spinous process of the ilium; right side. 8. Anterior inferior spinous process. 9. Acetabulum. *a*. Notch of the acetabulum. *b*.

FIG. 108.



Body of the ischium. *c*. Its tuberosity. *d*. Spine of the ischium seen through the obturator foramen. *e*. Os pubis. *f*. Symphysis pubis. *g*. Arch of the pubes. *h*. Angle of the os pubis. *i*. Spine of the pubes; the prominent ridge between *h* and *i* is the crest of the pubes. *k k*. Pectineal line of the pubes. *l l*. Ilio-pectineal line. *m m*. The prolongation of this line to the promontory of the sacrum. The line represented by *h, i, k, k, l, l, and m, m*, is the brim of the true pelvis. *n*. Ilio-pectineal eminence. *o*. The smooth surface which supports the femoral vessels. *p p*. Great sacro-ischiatic notch.)

It is composed, in adult life, of four bones, viz., two *os innominata*, the *sacrum*, and *coccyx*.

The sacrum is so called from its being anciently offered in sacrifice.

It is of a triangular shape, base above and apex below,

and wedge-shaped; concave anteriorly, convex posteriorly. It has four foramina, which give exit to the anterior sacral nerves, which unite to form the sacral plexus.

The muscle arising from the sacrum is the pyriformis. The promontory of the sacrum is formed by the union of the last lumbar vertebra with the sacrum. The canal contains the cauda equina.

It has two horns, or cornua, which unite with the horns of the coccyx, and form two foramina for the exit of the fifth pair of sacral nerves.

There are four posterior foramina for the passage of the four posterior sacral nerves.

The grooves on the outside are filled with the sacro-lumbalis and longissimus dorsi.

It has two ligaments—the sacro-sciatic, and the sacro-iliac. It is two and a half inches thick, and four inches wide.

The articulation to the coccyx constitutes a ginglymoid joint, which is impaired by age.

In the foetus it is composed of thirty-four pieces; at birth, five; in adults, one.

It articulates with the vertebræ by interspinous and capsular ligaments. It articulates with the coccyx by ligaments and fibro-cartilage; to the ilium, by symphysis; to the ischium, by ligaments.

In woman it is shorter, wider, and more curved than in man.

*Coccyx, Huckle Bone, or Cuckoo's Bill.*—It consists of three pieces, and in the young subject they may be separated. Altogether, it is about one and a half inches long.

There are two styloid processes on the posterior surface, which rest on the back part of the apex of the sacrum, and prevent the coccyx from being pushed back too far during labour.

The ginglymoid joint becomes anchylosed at from thirty-five to forty, in which case labour is more difficult.

The sphincter ani is attached to this bone.

*Os Innominatum, or Haunch Bone.*—It is a quadrilateral-shaped bone; size, six inches broad, and seven high.

It is composed of the ilium, ischium, and pubes.

They all unite in the acetabulum.

*Ilium, or Haunch Bone.*—It is quadrangular, concave inferiorly; and the concavity, or iliac fossa, is partly filled by the iliacus internal muscle.

Externally it is convex, and contains the glutæus muscles. The crest of the ilium is the upper portion of the bone, and shaped like the letter F, and serves as the attachments of the latissimus dorsi, obliquus externus muscles, and the femoral aponeurosis.

To the inner portion the obliquus internus, transversalis, quadratus lumborum, and to its anterior spinous process the tensor vaginæ femoris, iliacus muscles, and Poupart's ligament, are attached.

The rectus femoris muscle is attached to the anterior inferior spinous process.

The ischiatic notch is situated posteriorly, and is converted into two foramina by sciatic ligaments. The upper foramen is the largest, and emits the glutæal, sciatic and pudic arteries, and the sciatic and pudic nerves, together with the pyriform muscle, where the lower foramen emits the obturator internus muscles.

The *Os Ischium, or Seat Bone*, is divided into body, base, spine, and ascending ramus.

The base forms about two-fifths of the cotyloid cavity.

The spine is the inferior termination of the great sciatic notch.

The tuberosity is the inferior extremity of the bone, and to it are attached the great sacro-sciatic ligament, quadratus femoris, adductor magnus, biceps, flexor semi-tendinosus, and semi-membranosus, the gemellus, inferior and great sacro-sciatic ligament.



It unites with the ilium and pubis in the acetabulum, and to the sacrum by ligaments.

The anterior planes are converging and smooth, and give to the foetal head rotation during labour.

*Os Pubis, or Share Bone.*—It is situated anteriorly, and is divided into a body, two rami, spine, symphysis, and crest.

It forms a part of the cotyloid cavity. Its superior and inner edge forms a part of the linea ilio-pectinea.

The gracilis, the transversus perinæi, corpus cavernosum, the erector, the great sacral ligament, and the tendon adductor magnus, also Poupert's ligament, are attached to the pubes.

This bone connects in the acetabulum with the ischium and ilium.

The angle formed by the rami in woman is from ninety to one hundred degrees.

*Obturator Foramen, or Foramen Ovale, Foramen Thyroideum.*—It is a triangular-shaped foramen, situated below the os pubis, and anterior to the acetabulum.

It is formed by the rami of the pubes and ischium.

It is filled by two layers of periosteum, and is the point of attachment of the obturator externus and internus muscles.

*Brim of the Pelvis.*—It is composed of the ilium, sacrum, and pubes.

The articulation of the symphysis pubis is fibro-cartilage.

The ligaments are the anterior pubic, posterior pubic, supra pubic, and infra pubic.

It is said to be covered by a synovial membrane, and to be moveable.

The *Sacro-Iliac Symphysis* is caused by intervening fibro-cartilage.

*Sacro-Coccygeal Symphysis.*—It is articulated by the sacro-coccygeal ligament.

#### *The Ligaments.*

The ligaments are the *Great Sacro-Sciatic, Lesser Sacro-Sciatic, and Sub-Obturator.*

The great sacro-sciatic arises from the posterior and inferior spinous process of the ilium and posterior tubercles of the sacrum, inferior margin of the sacrum, and border of the coccyx.

It is inserted into the tuberosity of the ischium.

The lesser sacro-sciatic arises from the anterior lip of the sacrum, and part of the coccyx.

It is inserted into the summit of the spine of the ischium.

These ligaments convert the sciatic notch into two foramina.

The sub-pubic, or obturator, closes the obturator foramen.

#### *Divisions of the Pelvis, Greater and Lesser.*

It is separated by the linea ilio-pectinea. All above the line is called the greater, or false; and all below, the lesser, or true pelvis.

It is divided into two straits.

The upper strait is formed behind by the promontory of the sacrum, laterally by iliac fossæ, anteriorly by edge of pubes.

The circumference is fourteen inches; from back to front it is four inches, and from side to side it is five inches; from promontory to acetabulum, three inches.

The inferior strait is bounded by the inferior part of the pubis; the tuberosity of the ischium, by the inferior margin of the great sciatic ligament, and by the point of the coccyx.

Its circumference is thirteen inches, and is four inches from the coccyx to the pubis; transversely, four inches; obliquely, four and three-fourths inches.

#### *Arch of the Pubis.*

The angle formed by the descending rami of the pubis, and the ascending rami of the ischium, is from ninety to one hundred degrees. At base it is three and three-fourths inches broad; at apex, two inches. A line drawn perpen-

dicularly to the centre of the planes terminates anteriorly near the umbilicus; and posteriorly, at union with upper two-thirds of the coccyx, and its inferior third.

*Cavity*, the space between the superior and inferior straits.

*Dimensions*.—Height in front, one and a half inches; on sides, three and three-fourths inches.

It has four diameters, taken at centre:—First, *antero-posterior*, four and three-fourths to five and one-eighth inches; second, *transverse*, four and three-fourths inches; third and fourth, *oblique*, four and three-fourths inches.

By dividing the cavity equally by sections at right angles, two sets of inclined planes are seen, which are supposed greatly to influence the changes in direction necessary for the foetal head to perform its descent. Some, however, say that the motion of rotation is executed when the head is below the influence of these planes.

The *anterior planes* are directed from without inwards, from above downwards, and from behind forwards.

FIG. 109.

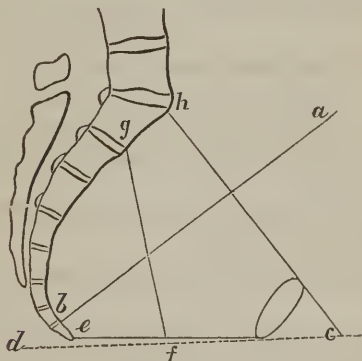


Fig. 109. *ch*. The plane of the superior strait prolonged beyond the pubis. *ce*. The plane of the inferior strait prolonged beyond the pubis. *cd*. Shows the departure of this plane from the horizontal line. *ab*. The axis of the superior strait. *gf*. The axis of the inferior strait.

The *posterior*, from without inwards; from above, downwards; and from before, backwards.

*Axis of Inferior Strait.*

It is a line from above downwards, and from behind forwards, running from first of sacrum, and falling at a right angle upon the middle of the bis-ischiatic space. The axes of the two straits cross in the cavity, forming an obtuse angle.

*Axis*, or *cavity*, a curved line parallel to curve of sacrum.

*Other Dimensions of Axis.*

Between the two anterior superior spinous processes, nine and a half inches.

Between the highest part of crests of the ilium, ten and a half inches.

From crest of ilii to tuber ischii of same side, seven inches.

Symphysis of pubes, vertically, eighteen lines; thickness, six lines.

Base of sacrum, anteriorly posteriorly, two and a half inches.

Base of sacrum, transversely, four inches.

Coccyx, in length, eleven to twelve lines.

From sacrum to pubes externally, seven inches.

From sacro-iliac symphysis of one side, to opposite ramus ischii, five inches.

From anterior margin of descending ramus of ischium to opposite side, four inches.

Circumference of superior strait, thirteen to seventeen inches.

From anterior margin of sacro-sciatic notch to opposite side, three and three-fourths inches.

## DIFFERENCES OF MALE AND FEMALE PELVIS.

*Male.*

*Alæ of ilium* more perpendicular.

*Sacrum* straighter.

*Coccyx* earlier united.

*Brim*, long diameter, anterior-posterior.

*Cavity* deeper, funnel-shaped.

*Tuberosities* converge three inches apart; outlet less capacious.

*Arch of Pubes*, seventy to eighty degrees.

*Foram.*, thyroid, oval.

*Depth of Symphysis*, at least two inches. A line drawn from sacro-iliac symphysis directly forwards, cuts off but little of superior strait.

*Female.*

*Alæ of Ilium* larger, wider, shorter, lighter; capacity greater.

*Sacrum* shorter, more concave, wider; not so thick.

*Coccyx* more moveable.

*Brim*, long diameter, transverse.

*Cavity* more shallow.

*Tubera Ischii* farther apart.

*Arch of Pubes*, angle ninety to one hundred degrees.

*Foram.*, thyroid, triangular.

*Depth of symphysis* eighteen lines; cuts off much more.

## DEFORMITIES OF THE PELVIS.

Deformities of the pelvis may be confined to the whole or a part of it.

The deformity may consist either in excess or diminution. When the pelvis is too large, the unimpregnated uterus is liable to retroversion and prolapsis.

The impregnated uterus falls too low, and compresses the rectum, bladder, vessels, and nerves. Deformities may occur; first, by projection of the base of the sacrum, second, by the turning back of the ramus of the pubis or by projection of the pubis itself.

In either of these deformities, the diameters of the pelvis may be diminished and labour rendered difficult. The inferior strait may be affected by the projecting forwards or turning up of the base of the sacrum, also by the approximation of tuberosity of the ischium.

The *cavity* is affected, first, by turning back of the ossa pubis; second, by the projecting inwards of the inter-pubic fibro-cartilage; third, by the excessive length of the symphysis pubis; fourth, by the sacrum being too much curved, increases the antero-posterior diameter, the head rests too long, or else the occiput not advancing, produces extension which results in the face presentation; fifth, the sacrum too flat, the head cannot rotate, and may cause the death of the child, or the great compression of the soft part of the mother; sixth, by morbid growth, exostoses, fibro-cartilage, &c.

#### CAUSES OF DEFORMITY.

The *first*, and most common cause, is *Rachitis* or Rickets, a disease of early life, in which the earthy parts of the bone are imperfectly elaborated; second, from Malacostion, (Osteo-malacia, Mollities Ossium,) occurs later in life; the earthy matter is deficient; third, exostoses, mal-united fractures, morbus coxarius, unreduced dislocation, anchylosis of sacro-coccygeal articulation from inflammation, &c.

#### VESSELS CONCERNED IN OBSTETRICAL PRACTICE.

The external *pudic artery*, a branch of the femoral; course transversely inwards; distributed to labia.

*Gluteal*, a branch of the internal iliac; course backwards; it emerges from the great sciatic notch. *Vesicle*, a branch of the internal iliac; *Vaginal*, a branch of the internal iliac; *Obturator*, a branch of the internal iliac; emerges from the upper border of the foramen; *Uterine*, a branch of the internal iliac; is very tortuous; it ascends

in the folds of the broad ligament; *Ovarian* from aorta. Internal *pudic* is a branch of the internal iliac; emerges through the great sciatic notch; re-enters smaller foramen, crosses to the ramus ischii; supplies the vagina.

The *Ischiatic*, is a branch of the internal iliac; emerges from the greater foramen. *Veins*, usually accompany the arteries. The external iliac vein at the brim lies behind the artery. Pressure produces œdema or *varices*.

*Nerves* concerned in parturition are the *anterior crural*, arises from the second, third, and fourth lumbar vertebræ; passes outside of the femoral artery; distributed to the rectus, &c. Pressure on it produces cramps of the inner and fore part of the thigh, occurring during gestation.

*Obturator*, from the third and fourth lumbar vertebræ; it emerges from the obturator foramina, distributed to the abductors; pressure produces cramps of the inside of the thigh as the head enters the pelvic cavity.

*Sciatic*, from the fourth and fifth lumbar vertebræ, and the first, second, and third sacral; emerges by the side of pyriformis: supplies the posterior part of the thigh, leg, and foot; is subject to pressure during parturition, and cramps are caused in the calf of the leg and sole of the foot; relieved by pressure and friction, sometimes very severe.

The *fourth sacral* supplies the bladder and rectum; hence pressure produces irritation.

*Pudic*, from the third sacral; supplies the clitoris and external organs. Certain *Muscles* are also interested. Pressure upon these causes pain on motion and in defæcation.

*Levator ani*; origin, pubes below the brim, the spine of the ischium and obturator aponeurosis; direction, by the side of the vagina; insertion sphincter ani.

*Obturator internus*; origin, obturator ligament and around the obturator foramen; direction, tendinous around the



spine of the ischium; emerges by the small sciatic foramen; insertion, digital fossa.

*Coccygeus*.—Origin, from the spine of the ischium; insertion, coccyx.

*Transversus perinei*.—Origin; tuberosity of the ischium; insertion, the sphincter ani and vagina and into the perineum.

### ORGANS OF GENERATION.

They are divided into internal and external. The external are the Mons Veneris, Labia Majora, and Labia Minora, Clitoris, Vestibulum, Meatus Urinarius, Hymen, Fossa Navicularis, and Fourchette.

The internal are the Vagina, Uterus, Fallopian tubes, and ovaries.

### PUDENDUM.

The term is applied to the whole of the external genitals, and vulva. It includes all parts external to the vagina embraced by the Labia Majora.

### THE MONS VENERIS

Is a triangular prominence, situated at the lower part of the Hypogastrium. It is composed of adipose tissue, vessels, nerves, skin, and sebaceous glands.

After puberty it is usually covered with hair. It is subject to abscesses and excessive growth of hair.

### THE LABIA MAJORA

Are two rounded folds which bound the orifice of the vulva; formed externally of skin, and internally of mucous membrane. It is usually well supplied with adeps and vessels from the internal pudies. It is also covered with hair. Use to protect enclosed parts; in labour they distend greatly, subject to excessive development, inflammation, abscesses, eruption, pruritus, encysted tumours, lipoma, varix thrombus, and œdema.

THE LABIA MINORA, OR INTERNAL LIPS,  
CALLED ALSO NYMPHÆ,

are two membranous folds lying between the *Labia Majora*, shaped like a cock's comb. They cover the vestibulum and meatus. They are composed of mucous membrane externally, and erectile tissue internally; they are smooth and rosy in the young; flaccid and pale in the old. They are subject to inflammation, enlargement, &c.

THE CLITORIS

is a small elevation about one-eighth of an inch in length, situated at the union of the nymphæ, and at the lower edge of the symphysis pubis. It is composed of two *corpora cavernosa*; terminates in a gland covered by a prepuce; contains vessels and nerves from the pudic; subject to enlargement.

THE VESTIBULUM

is a triangular smooth space, bounded above and in front by the clitoris; below and behind by the urethra, laterally by nymphæ. Length, an inch.

THE MEATUS URINARIUS

is a rounded opening situated one inch below the clitoris; diameter one-fifth of an inch.

URETHRA.

The urethra is the urinary canal, and extends from the meatus to the bladder; length twelve to fifteen lines, is very dilatable, so much so as to permit impregnation in cases of uterus connected with the bladder. It is subject to tumour and prolapsus.

HYMEN.

The hymen is a membrane partially closing the vagina. It is not peculiar to the human female. It is supposed by some to be a test of virginity, but is not, as other causes besides coitus may destroy it.

It may be imperforate, and may prevent menstruation and coitus, but in the majority of cases it is absent.

#### THE CARUNCULÆ MYRTIFORMES

are two pairs of round red tubercles at the orifice of the vagina; supposed to be remains of Hymen.

They are supposed to increase the capacity of the vagina in labor.

#### FOURCHETTE (FOURSHATE.)

This is a sort of bridle forming the posterior commissure. It consists of folds of the mucous membrane.

It is usually ruptured in the first labour.

#### PERINEUM.

The perineum is the muscular floor extending from the trunk to the anus.

It is composed of muscle, adipose tissue, and integument. It has a raphe on the median line. It is the frequent seat of hernia.

#### VAGINA.

The vagina is a membranous sheath extending from the vulva to the uterus. It is from four to six inches in length; is longest previous to child-birth.

It is located anterior to the urethra and bladder.

On the sides of it we find the ureters, broad ligaments, sacral plexus of nerves, levator ani and muscles.

On the back we find the rectum. Inferiorly where the hymen exists it is guarded by it.

Superiorly it embraces the cervix uteri, forming a cul-de-sac before and behind.

On opening, a large number of rugæ or folds will be observed. It is lined with a mucous membrane covered by tessellate epithelium. A large number of veins and other vessels are found in the vagina. The arteries supplying the uterus are from the internal iliac. The Lym-

phaties go to the hypogastric plexus. The vagina is subject to a great variety of diseases, viz.: inflammation, cancer, &c., which will be described hereafter.

#### UTERUS.

The uterus is a hollow viscus, (see figs. 110 and 111.\*) Use, to receive, protect, and expel the foetus. It is situa-



Fig. 110.

Fig. 111.

ted above the vagina, below the small intestines, behind the bladder, and in front of the rectum.

It is pear-shaped, flattened from before backwards, apex below and base above. It is covered through its whole extent with peritoneum. It is divided into fundus, body, cervix, and os. The fundus is that part above the orifice of the Fallopian tubes. The body is between the fundus and cervix. The part below, about three-fourths of an inch in length, is the cervix; the opening through the cervix to the body of the uterus is the os. It is situated between the two folds of the broad ligament. It weighs in virgins seven to eight drams; in multipara one and a half ounces. A short time previously to menstruation its weight is increased. It is from two to three inches in length, two

\* Fig. 110 shows the uterus previous to impregnation, and fig. 111 afterwards.

inches and a half broad, and two-thirds of an inch thick. The superficies is sixteen inches. The cavity is capable of containing about a dram of fluid. It is pear-shaped. On the surface are seen *ovula nabothi*, which are muciparous follicles. They secrete the fluid that closes the cavity of the cervix after pregnancy. The uterus is composed of mucous membrane, peritoneum, areolar tissue, and muscular tissue.

#### FUNCTIONS OF THE UTERUS.

- 1st. To secrete mucus.
- 2d. To eliminate menses.
- 3d. To develop decidua.
- 4th. To receive and nourish embryo.
- 5th. To expel fœtus.

The uterus is largely supplied with arteries, nerves, veins, and lymphatics. It may be wanting and is subject to a great variety of diseases. There are two sets of lymphatics; they develop greatly in gravid uterus.

#### THE BROAD LIGAMENTS

are three quadrilateral folds of the peritoneum, extending from the uterus to the sides of the pelvis, dividing the uterus into two compartments. The upper fold contains the Fallopian tubes, posterior contains the ovary and ligament of the ovary; the anterior has the round ligaments.

The round ligaments are two in number; they arise on the front of the uterus; direction outwards and upwards, terminating in the mons veneris. They are from six to seven inches in length; are composed of vessels, nerves, absorbents, areolar tissue and straight muscular fibre.

*Use.*—They prevent retroversion.

The *other Ligaments* are,—*Anteriorly*, vesico-uterine,—*Posteriorly*, recto-uterine. They are folds of the peritoneum.

## THE FALLOPIAN TUBES

are two cylindrical canals, four inches in length, composed of the peritoneum externally, middle muscular, erectile mucous lining, ciliated epithelium; they terminate in a fringed end called "fimbriated end, or extremity," "morsus diaboli," "infundibulum." One fringe is attached to the ovary. They enter the uterus obliquely at the fundus. They transmit semen, and emit ova; are contracted near uterus and expanded near ovary, capable of admitting a bristle to a crow-quill. Are situated in middle fold of broad ligament.



Fig. 112.

*Ovaries (testes muliebres).*—Two oval flattened bodies, lying in posterior fold of broad ligament, behind and below Fallopian tubes, one and a half inches from uterus on either side, one and a half to one and a quarter inches long, one half to five-eighths inch wide, one quarter inch thick. A fibrous cord attaches the organ to the uterus; it is one and a half inches long. *Ovary* is composed outside of peritoneum.

2d. Of *Tunica Albuginea*.—It forms a septum which traverses the organ, forming cells. Of the stroma ova Graafian vesicles are formed. Of these there can be seen from fifteen to thirty, but, with the microscope, an innumerable number can be seen, the larger on the outside. The function of the ovaries is to supply ova to stimulate

menstruation. When the ovaries are removed, the female loses her sexual characteristics.

*Menstruation* is the term applied to the series of phenomena that attend the rupture of a Graafian vesicle. It is usually said to be a periodical sanguineous discharge from the female genitals.

*Synonyms, Menses, Changes, &c.*—The appearance of the menses is an evidence of capacity for conception. The age of appearance is usually at fourteen, but varies from nine to twenty-four years.

Cold climate delays, and hot hastens it. It is later with country girls of simple and laborious habits, while a luxurious life, balls, plays, exciting books, pictures, and the use of stimulants, hasten it, and, also, a sanguineous temperament accelerates it.

*Premonitory Symptoms.*—There are inequalities of spirits, headaches, lassitude, uneasiness, weight in loins or perineum, pain in back, tension in epigastrium, pruritus of vulva, mucous discharges, pain in the thyroid body, colic pains, the skin has a peculiar odour, and is disposed to eruptions, congestion of mucous membrane, epistaxis, and irritation of breasts.

Sometimes menstruation commences without precursory signs. The first few periods are frequently irregular, as to time of return and amount of discharge. The manifestations of the approach of puberty are seen in the development of the mammæ, the expansion of the hip, the rounded contour of the body and limbs, the development of hair on the pubis, the development of voice, reserve takes the place of forwardness, and the plays of the child are exchanged for the pursuits of womanhood.

The *duration* is from a few hours to one week, or even more. The average is from four to five days. The *quantity* is from four to six ounces. Change of climate, from cold to hot, is said to produce excess, and change from



country to city is said to increase it. Women of bilious temperament are said to menstruate most profusely.

*Nature and Colour.*—It is blood, mixed with vaginal mucus and uterine epithelium. It is thin, and of a dark, venous-blood colour, with a faint, unpleasant odour. When discharged from the uterus it is alkaline, and usually coagulable; discharged from the vagina, it is acid, not usually coagulable, and contains lactic and phosphoric acid.

*Mode of Discharge—Guttatim.*—On the first day, it is quite fluid, less highly coloured, and less in quantity. The menses return usually every twenty-eight days.

The varieties are, twenty-two, twenty, eighteen, fifteen, or thirty-two, thirty-five, and forty days. The most important element is the regularity of return. *Cause.*—The maturation of a Graafian vesicle. Menstruation depends on the ovaries. The proof is that when these organs are removed, or even diseased, if the uterus be normal, the catamenia are absent, or cease, while, even though the uterus be absent, the menstrual molimen will give evidence of the existence of ovaries.

*Seat.*—It is usually from the cavity of the body of the uterus—sometimes from the vagina, as a compensating discharge. The proof of its uterine origin is in *proclivencia*, inversion, and occlusion of the os by the speculum.

*Source.*—The source is the uterine capillaries by rupture.

*State of the Uterus.*—The arteries and veins are more distended, the uterine tissue looser and more pink, the os is more patulous, and the Fallopian tubes are more vascular. The hypertrophy of the mucous membrane is like decidua. Cessation usually takes place at from forty-five to fifty years of age.

The variations are thirty-six, thirty, twenty-six, twenty-four, fifty-five, sixty, seventy, ninety-one. The duration of the menstrual life is about thirty years. The period of final cessation is called change of life, turn of life, &c. The

evidences are flaccid mammæ, cheeks flaccid and wrinkled, and the skin yellowish. The eyes lose their brightness—and sometimes there is a quasi beard. It is vulgarly supposed to be a critical period, but fewer women than men die between forty and fifty.

*Varieties in Mode of Cessation.*—Sometimes the menses cease gradually. They are sometimes excessive, at one time, and then scanty. They sometimes cease and return, even at considerable intervals. Sometimes they are irregular in time and quantity, and sometimes they cease by a mucous discharge.

*Reciprocal influence of acute disease and menstruation.*—All acute diseases exert a pretty similar effect on menstruation, but this influence varies accordingly as the disease is developed, during an epoch, or during an interval. In the first, the menses are usually suppressed completely or incompletely, and may reappear, after some hours or days, usually diminished. In the interval, if the next epoch is near, menstruation is favoured by the increased hemorrhagic condition of the organs. The menses are usually absent, or notably diminished, at the periods that occur during the decline of the disease, or in convalescence, lasting from one to three months. The menstrual eruption in nowise predisposes to disease, and it exerts no appreciable influence on the issue of acute febrile affections. No special therapeutical indication in the treatment of acute febrile disease is desirable from the state of the menses, and we must act without reference to menses.

*Disorders of menstruation* occur in four ways—*Obstruction*, *Suppression*, *Menorrhagia*, and *Dysmenorrhœa*. Some add a fifth—*Vicarious Obstruction*. More usually, amenorrhœa is applied to cases in which there is no catamenial discharge.

*Causes.*—1. Absence of the ovaries.

2. Occlusion of the os and vagina.

*Operation for Occlusion of the Vagina.*—Introduce a

finger into the rectum, and a catheter into the bladder; the occlusion may be separated by the scalpel, or perforated by the trochar. Use a bandage to the abdomen. Wash out the vagina with tepid fluids. To prevent closure, a careful use of the bougie or cylindrical speculum is required. Imperfect development of the uterus is irremediable.

*Functional Amenorrhœa* is not so much a disease as a symptom of the constitutional derangement or lesion of the ovaries. There are two forms of functional amenorrhœa—

1st. Tonic, or sthenic, or active.

2d. Atonic, or passive.

*Symptoms.*—Headache, active circulation, hot skin, pain in the back, loins, legs, &c. It becomes atonic.

## CHLOROSIS

' Is essentially a disease of the blood. The red globules are reduced from one hundred and twenty-seven in a thousand to sixty. It occurs most frequently in girls, about the age of puberty.

*Causes.*—Feebly developed constitution, unwholesome diet, residence in damp, marshy countries, debility of the digestive organs, sedentary occupations, disappointed affections, excessive venery, and masturbation.

*Diagnosis.*—Loss of or morbid appetite, green discolouration of the skin, &c.

*Treatment.*—Iron, macrotin, eupatorin perfo., euonymin, baths, and country exercise, is the best treatment. (See Chlorosis, in another part of the book.)

*Suppression of Menses—Acute.*—Caused by wet feet, iced-water, insufficient clothing, bathing, &c.; fear, grief, anxiety, drastics, emetics, falls, and coitus during flow—also, acute diseases.

*Symptoms.*—Weight, pain in the head and loins, and uterine regions, hot skin, apoplexy, epilepsy, vicarious hemorrhages, &c.

*Chronic suppression* may result from an acute attack, or gradually, as the result of some irregularity in the secretions of the uterus, thus preventing the maturing of the ova—or it may depend upon organic disease of the uterus or ovaries. The menses may disappear gradually, with a scanty, painful serous discharge. Sometimes a painful monthly nîsus, but no discharge. Sometimes persistent leucorrhœa.

*Symptoms.*—Headache, vertigo, muscæ volitantes dilated, pupils, heat and cold, chills, dryness, constipation, urine abundant and limpid, dyspnœa, palpitation, and depraved appetite.

*Vicarious menstruation* is a discharge from some other part than the uterus, usually occurring in the unmarried. If in the married, conception is rare.

*Nature.*—Usually blood, sometimes leucorrhœal. It occurs in any part of the skin or mucous membrane, in the form of epistaxis, hemoptysis, &c.

*Symptoms.*—Local pain, hysteria.

*Menorrhagia.*—Profuse, prolonged, or too frequent menstruation, separately or conjoined. A normal discharge in one woman may be menorrhagic in another. Climate has an influence—hot increases the flow, while cold diminishes it.

The *Active* form occurs in early life in the robust, but is quite rare.

*Symptoms.*—Headache, hot skin, full pulse, weight in the back, hips, and loins, pelvis, &c., are noticed for some days. A discharge produces relief.

The *Passive form* is caused by hot rooms, abortions, leucorrhœa, falls, excessive venery, long walks, constipation, &c. In pregnancy, it has its seat in ulceration of the cervix.

The health breaks; there is anemia, and often hysteria: the signs are, pain in the head, flashes of heat, tinnitus

aurium, pain in the left side, palpitation, &c. Tubercle often ensues.

*Dysmenorrhœa—Painful and Difficult Menstruation.*—The symptoms are those of menstruation, but greatly exaggerated. Sometimes convulsions occur. It occurs most frequently in single women, and is caused usually by cold at the menstrual epoch. Sometimes by constricted os or cervix.

*Symptoms.*—Restlessness, heat, flushed face, pain, weight and heaviness in the head, pain in the back, pubes, coccyx, and thighs—sometimes so severe, as to produce syncope. After some time, the pain becomes bearing down, and a shreddy discharge ensues. Sometimes a sac is discharged, being an exaggeration of the deciduous membrane that occurs normally at the menstrual period.

But little effect is produced on the general health of the young and plethoric. In the nervous, the health fails, and, not unfrequently, phthisis ensues. All menstrual disorders are apt to awaken phthisis in the predisposed. Women subject to dysmenorrhœa after the cessation of the menses, are liable to cancer.

*Leucorrhœa.*—Discharge from the female genitals—hue varying from a light to a yellowish-green or reddish brown. Consistence, from a limpid serum to a ropy substance.

*Treatment for Acute Suppressed Menstruation.*—If the suppression is recent, apply hot mustard poultices to the mammæ. Give a hot foot-bath—also, the following compound :

R.—Senecin.....	gr. x.
Gossypiin.....	gr. xv.
Apocynin .....	gr. i.
Sacch. alba.....	℥j.
M. ft. pulv.....	No. vj.

Sig. One every two hours. In bad cases, a hot sitz-bath should be given during the operation of the medicine. If this treatment do not succeed, iron, quinine, eaulophyl-

lin, senecin, wine, and tonic tea, should be given until the system is invigorated, and then the above treatment should be repeated. The chronic form of the disease should be treated by supporting and invigorating remedies, such as bebeerine, maerotin, sitz baths, &c.

Menorrhagia may be treated with eeracin, gelsemin, trilliin, helonia, female injections of a decoction of hydrastus, matico and cinchonia. Dysmenorrhœa is treated with the various preparations of iron, gossypiin, bebeerine, quinine, gelsemin, irritating plaster over the ovary, nutritious diet, and general tonics.

Sometimes several ounces in twenty-four hours. It is a symptom of irritation, congestion, inflammation or ulceration of the cervix. Frequently a catarrhal affection.

*Symptoms.*—At first, itching, heat, weight, sense of fullness, pain during urination, bearing down, &c.

The *Acute* form is caused by cold, local irritation, excessive coitus or pessaries, hot baths, too free living, pregnancy, abortion, dysmenorrhœa, &c.

The *Chronic* is a sequel of the acute form. The discharge does not differ in appearance from gonorrhœa in many respects.

*Treatment.*—The treatment for leucorrhœa must depend much upon the cause. The cause should first be removed, then the attention should be directed to the irritation and inflammation of the cervix uteri and vagina. This can best be removed by daily alkaline baths to the surface, in connexion with anti-bilious physic, followed by small doses of veratrum viride or gelsemin, and rest. If it is an acute case, cold water vaginal injections, or, if chronic, hot water injections will also assist in removing the congestion or inflammation. After the inflammation is removed, if the discharge continues, female injections of a strong decoction of equal parts of golden seal, white oak bark, and cinchonia, should be frequently used during the day, and from one to



two grains of hamamelin, in connexion with small quantities of iron, should be given two or three times a day. Corrin, bebeerine, macrotin, caulophyllin, and gelsemin, are also used for the same purpose. Sitz baths, hot packs over the epigastrium, electricity, and an irritating plaster to the sacrum, may also be used in some cases of leucorrhœa.

*Ulceration and congestion of the os uteri* is the true pathology of the vast majority of cases called leucorrhœa. It exists in virgins, the non-pregnant, pregnant, but most frequently in multiparæ.

*Causes.*—Coitus, imprudence during menstruation, as standing, walking, lifting, &c., and, very often, premature efforts after abortion or labour.

*Symptoms.*—The most frequent is leucorrhœa, varying in quality, being mucous, purulent, or starchy; in colour, milky, greenish, yellowish, or brownish—often tenacious masses of mucus, like starch, come away.

*Treatment.*—When there is absolute ulceration of the os, a glass speculum should be introduced into the vagina, and the os cauterized with a solution of nitrate of silver, of the strength of fifteen grains to the ounce of water. It can be applied by means of a probang. After each application, and previously to removing the speculum, a small amount of the superfine flour of slippery elm should be applied to the os. The constitutional symptoms should be treated according to their nature. Vaginal injections of a decoction of red raspberry leaves and golden seal will also prove beneficial.

The bowels should be kept regular by means of neutralizing mixture and leptandrin, and the following powder should be given :

R.—Gelsemin.....	gr. ij.
Caulophyllin.....	gr. x.
Hamamelin.....	gr. xx.
Hypophosphite of soda.....	gr. v.
Sacch. alba.....	gr. xxx.



Mix. Triturate. Divide into fifteen powders. Dose, one four times a day.

After the inflammation is subdued, give a tonic as follows:

℞.—Chamomile flowers.

Eupatorin purpurin.

Caulophyllin thalyctroides, āā.

One half ounce.

Port wine, one quart.

Mix. Dose, one tablespoonful three times a day. During the administration of this medicine, the baths and injections should be continued, the diet well regulated, and the patient allowed to take free exercise in the open air.

*Falling of the Womb* is denoted by pain in the back and loins, and surpubic region, heat in the vagina, painful coitus, menses painful and irregular, constipation and diarrhœa, bladder irritable, the cervix is lower than usual, lips large and tumid, the anterior portion of the os is soft, spongy and hot, there is a velvety feeling, and sometimes tenderness on pressure.

There may be ulcers varying in size from a pea to a half dollar. They are bright red, deep red, granular and bleeding, whitish, patchy, with the base coated, and the edges angry. Authors divide them into granular, cockscorn, bleeding, superficial erosion, varicose ulceration, fissured ulcer, follicular.

*Symptoms.*—All varieties of dyspepsia, hysteria, neuralgia, cough and dyspnœa.

*Prognosis.*—Probably no disease so severe in its effects is so easily cured.

*Treatment.*—In case of prolapsus uteri, the patient should observe perfect quietude. The inflammation should be treated as previously described, after which the uterus should be replaced by introducing the index finger into the vagina, and grasping the abdomen above the pubis, when, by a rapid extension of the finger, and an upward pressure

of the abdominal parietes, the uterus should be carried up to its normal position, after which the vagina should be injected with a warm decoction of equal parts of hemlock and white oak bark—the bowels kept open by means of mild laxatives, and such constitutional treatment instituted as will restore the patient to her normal health.

## DISEASES OF THE EXTERNAL ORGANS OF GENERATION.

### 1. SUPERFICIAL INFLAMMATION OF THE VULVA.

Any part of the external organs of generation may be the seat of inflammation. This inflammation may be superficial, affecting the skin and mucous membrane only, or it may be severe, affecting both the skin and sub-cutaneous tissues.

#### SYMPTOMS.

† The skin is reddened and slightly tumefied, the mucous follicles are prominent, sometimes of a pale colour, at others of a deep red or purplish appearance. The ulcers will be small and oval.

#### CAUSES.

Generally a want of cleanliness; or from the acrid character of the vaginal and uterine secretions, or from causes that produce inflammation in other parts.

#### TREATMENT.

Frequent bathing with Castile soap and water.

### 2. PHLEGMONOUS INFLAMMATION OF THE VAGINA.

It involves both the skin and sub-cutaneous tissues; it occurs most commonly in the labia pudendi, but sometimes in the *mons veneris*. It may occur in one or both labia, and sometimes gives rise to great swelling of the parts.

## SYMPTOMS.

Uneasiness in standing, sitting, or walking; pain, heat, redness, or swelling. The inflammation runs a rapid course, and terminates in suppuration. When suppuration takes place the patient complains of throbbing pain in the part.

## CAUSES.

A fall or blow may give rise to it. Also masturbation, a first connexion, pressure of the child's head as it passes the outlet, &c.

## DIAGNOSIS.

It may be distinguished from hernia by the greater hardness of the swelling, by its circumscribed character, and by its not being reducible. It may be distinguished from œdema of the labium by its more circumscribed character, and darker colour; and from tumours of the labium, by its acute course, and by the greater degree of heat, redness and pain.

## TREATMENT.

Apply a poultice of equal parts of slippery elm and white pond lily. Keep it wet in the tincture of lobelia. Give quinine and anti-bilious physic internally.

## COHESION OF THE LABIA.

This may be congenital, or the result of accidental disorders. The cohesion is seldom complete; a passage sufficient for the urine generally exists. Sometimes, though rarely, complete cohesion exists at birth.

## CAUSES.

Acute inflammation of the vulva caused by severe labour, or it may be spontaneously; from a burn, a venereal affection, a wound or laceration, or any cause producing inflammation.

## DIAGNOSIS.

Where the cohesion is partial and near the posterior commissure of the vulva, there is an accumulation of urine and other discharges at that point, which if suffered to remain, may produce ulceration, fistulas, etc.

## TREATMENT.

Carefully separate the labia by dissection and subdue the inflammation.

## ENCYSTED TUMOURS OF THE LABIA.

These tumours are generally circumscribed and tense,—forming a round or oval projection from the vulva,—and are often semi-transparent. Some are as large as a partridge's egg, others are said to be as large or larger than a goose egg. The contents of the cyst are sometimes a yellow serum; at others, a viscid fluid, a dark-coloured puriform matter, or a semi-solid lardaceous matter; the cavity is always lined with a distinct secreting membrane, the proper cyst-wall. These tumours may remain for years and give the patient but little uneasiness. When large, they cause disturbance, by the tension of the parts. They rarely produce pain, unless by aggravating adjacent organs.

## DIAGNOSIS.

This tumour differs from phlegmonous inflammation by its slow growth, and the absence of pain, heat, and redness. It is unlike œdema in its circumscribed form, being confined to one labium, and by its slow growth. It is unlike hernia in these respects. It swells and distends while coughing, and cannot be returned into the abdomen. To remove doubt, the exploring needle may be used.

## TREATMENT.

The tumour should be thoroughly cauterized with caustic potassæ, and the parts covered with a slippery elm poultice.

The constitutional treatment should be according to the symptoms presented.

### OOZING TUMOUR OF THE LABIA,

Arises in one or both labia, and sometimes extends to the *mons veneris*. Sometimes it covers nearly the entire labia. It projects from a line or two to one-third of an inch above the plane of the surrounding skin. The surface consists of slight depressions and eminences from which the liquor oozes in the form of a watery fluid, and forms drops which run off and keep the surrounding parts wet. The adjacent parts are sometimes œdematous, though œdema is not found in the tumour. This tumour increases in size, until the quantity of fluid is such as to cause much pain to the neighbouring parts by its irritation in constantly passing over them. Thus there are smarting and shooting pains on the inside of the labium with a general sense of heat of the external organs, and pain and heat in passing water.

#### TREATMENT.

Apply to the tumour the mild zine ointment; if that should not remove it, cauterize it and apply poultices as in encysted tumour.

### VARICES OF THE LABIA.

*Characteristics.*—Dilated veins from beneath the skin and mucous membrane; lumps more or less protuberant as they are of old or recent date. The tumours are indolent upon pressure, of a bluish colour, and so soft that they disappear upon pressure, but appear again as soon as the weight is taken off. They may become the seats of fungous ulcers difficult to heal. This is sometimes accompanied by pruritus.

#### CAUSES.

Too frequent coitus, the use of instruments in labour, pregnancy too often repeated, and any obstruction of the venous blood through the pelvis.

## TREATMENT.

Bathe the parts with a solution of the muriated tincture of iron, and if there be ulcer, the treatment should be as prescribed for varicose ulcers.

## THROMBUS, OR SANGUINEOUS TUMOURS OF THE LABIA.

This consists in extravasation of blood into the cellular tissue of the labia, and is caused by a rupture of some vessels of the parts, generally the veins: these tumours accompany parturition, and occur previously to delivery, during labour, or immediately after confinement. One or both labia may be affected; the tumour may extend upwards into the pelvis or downward to the perineum; the size depends upon the distensibility of the tissues; it sometimes becomes as large as a child's head, it is irregular and of a livid or black colour, the patient lies on her back with her thighs drawn up and widely separated. She is scarcely able to move, cannot even support the weight of the bed-clothes. If the tumour does not give way, distention of the parts causes great pain. In some cases its progress is very rapid, the great effusion of blood causing syncope. In other cases the mucous membrane gives way in a short time, causing dangerous hemorrhage. If the labour is completed without a rupture of the tumour, it soon vesicates, becomes gangrenous, and the contents are discharged. In this case the blood is more or less clotted, and the hemorrhage is not so great. This tumour has been most frequently seen during natural labour. The tumour causes retention of the urine by pressing against the meatus urinaris. This tumour may be easily diagnosed from other tumours; it may be distinguished from hernia by its irregular form, the fluidity of its contents, its colour, and not being reducible, nor changed by coughing.

## TREATMENT.

Hot packs should be applied to the tumour and frequently changed, the bowels kept open by mild purges, and if there be hemorrhage, pressure should be applied to arrest it. If gangrenous ulcers, equal parts of baptisin and sulphate of zinc, followed by emollient poultices. The patient must be kept quiet, and if there be inflammation and fever, anti-inflammatory remedies, such as veratrum or aconite should be given internally, and an astringent and antiseptic poultices applied externally.

## WARTY TUMOURS OF THE VULVA.

These tumours may be developed upon any part of the external genitals, and have been found in the vagina. They may occur at any age, and may be single or in groups. In size they vary from a pea to a hen's egg. There is scarcely any difference in colour between them and the adjacent parts.

## SYMPTOMS.

They commonly produce considerable irritation, causing a discharge of mucus. If large, they cause considerable inconvenience in walking, sitting, &c.

## CAUSES.

Want of cleanliness, chronic inflammation of the parts, and frequently the sequelæ of syphilis.

## TREATMENT.

They may be removed by the scissors or ligature.

## DISEASES OF THE URETHRA.

*Introduction of the catheter.*—In young persons the external orifice of the urethra is immediately below the symphysis pubis, and nearly level with its anterior face. In those who have borne many children, the urethra is shortened, and the orifice will be found behind the pubis



and near its posterior face. In enlargement of the uterus the direction of the urethra will change, so that in the latter stage of pregnancy it will be found nearly perpendicular, passing along the inner surface of the symphysis pubis, and the meatus will be found behind the pubis and near its posterior face.

During labour the direction will be the same, but the descent of the head into the pelvis compresses the urethra so that the catheter can with difficulty be introduced. In this case the head should be gently raised by two or three fingers of one hand, while with the other the catheter may be introduced. After labour much care should be used in its introduction, as the tissues are much relaxed.

#### URETHRITIS.

This affection may be acute or chronic; the chronic form always results from the acute. It may occur at any age.

#### SYMPTOMS.

Constant pain along the urethra, greatly increased by passing urine. There is also bearing down; the urine is passed with great difficulty, and but a small quantity at a time, the patient having a constant desire to evacuate the bladder. In some cases the urine cannot be passed at all; for as soon as it touches the inflamed surface spasms take place, which prevent the passage of a drop. In acute cases the urethra will be extremely painful to the touch. If the orifice be dilated the mucous membrane will be seen to be unusually florid, and it may be so swollen as to protrude from the orifice. In the acute form there is no discharge from the urethra, but in the chronic form sometimes there are ulceration and a mucopurulent discharge.

#### TREATMENT.

If acute, apply hot packs to the vulva; let the patient drink freely of marsh-mallow tea, and give one or two drops

of tincture of veratrum viride every hour or two until the inflammation is controlled.

#### OCCLUSION OF THE URETHRA.

This is a congenital affection, and may exist independently of any malformation of the other genital organs.

This malformation generally consists of a thin membrane stretched across the orifice of the urethra, though cases have been reported in which the closure affected even the whole canal. The urethra may be mechanically obstructed by cohesion of the labia.

#### TREATMENT.

The membrane should be ruptured by a small catheter; or if it will not yield to gentle pressure of the catheter, it should be punctured by a small trochar.

#### FOREIGN BODIES IN THE URETHRA.

Foreign substances in the urethra consist either of substances introduced from without, or of calculi from the bladder. These substances, by contact with the walls, produce considerable irritation and spasmodic contraction, thus preventing their farther passage. Their exact position may be ascertained by the catheter, or sound. They may be removed by a small pair of polypus forceps. It is sometimes necessary to relax the urethra, especially if the substance be large. Owing to the great dilatability of the urethra in females, very large calculi can be passed.

A case is recorded, where a stone weighing four ounces, and another as large as a goose egg, were expelled without aid by mechanical means, or otherwise.

The urethra may be dilated by applying gelsemin, belladonna, or stramonium.

## DISEASES OF THE VAGINA.

## OCCLUSION OF THE VAGINA.

This may be either congenital, or the result of disease. It may occur in any part of the vagina, or involve its entire extent.

## IMPERFORATE HYMEN.

This is not likely to be discovered until the commencement of menstruation. It may then be suspected if the female have all the symptoms which accompany the menses, without a discharge of the fluid, and if these symptoms should recur at regular intervals, accompanied with a sense of weight and fulness of the vagina, and especially if an enlargement is perceptible in the hypogastrium, with pain and tenderness.

The symptoms become ameliorated in the course of a few days, but return at each successive menstrual epoch. We may be sure that these symptoms are caused by imperforate hymen when we can discover between the labia a hemispherical tumour, of a livid or bluish colour, soft and fluctuating. In most cases the membrane has been found quite thin, but it is sometimes from one-fourth to three-eighths of an inch thick.

## TREATMENT.

Where the hymen cannot be perforated with the finger, it should be separated with a sharp-pointed bistoury, or punctured with a trochar.

## STRICTURE OF THE VAGINA.

This may occur as a natural malformation, or may arise as the result of disease. Congenital stricture, or narrowness of the vagina, is rarely met with. In some instances the vagina has not been more than half an inch in diameter. Acquired stricture of the vagina is much more frequent than congenital. It may arise from violent inflammation of

the vagina, or from anything that would produce induration and thickening of its walls, as the imprudent use of vaginal injections.

#### TREATMENT.

Where stricture of the urethra is dependent upon inflammation, or upon prolapsus connected with inflammation, as it frequently is, the vagina should be frequently injected with warm mucilage, and the inflammation controlled by means of aconite, gelsemin, or mild purges. If the stricture is not overcome in this way, a graduated bougie should be introduced, and gradual pressure made until the stricture is overcome. If the introduction of the bougie should produce much pain, the pressure should at first be slight, and the effort be repeated every two or three days until the stricture is overcome.

#### ACUTE VAGINITIS—INFLAMMATION OF THE VAGINA.

This affection may be confined entirely to the mucous membrane, or it may extend to the sub-mucous cellular tissue. It is attended with pain, swelling, and redness of the vaginal canal; the mucous membrane is of a vivid red colour, and the rugæ are more developed and prominent than is natural. At the first stage there is an arrest of secretion; but after a day or two a serous secretion sets in, which becomes purulent, and of a yellowish or greenish colour. As soon as this secretion is fairly established, the pain, heat, &c., diminish. If the sub-mucous tissues become involved, the inflammation may assume a phlegmonous form, and terminate in purulent collections, which empty into the vagina.

#### CAUSES.

The disease may arise from cold, which is the most frequent cause; also from injuries to the vagina by violence, excessive venereal indulgence, exertion after delivery, high living, &c.

## TREATMENT.

The vagina should be frequently injected with warm water, the patient kept quiet, and the inflammation controlled by tincture of *veratrum viride*. The chronic form of the disease may be treated as under the head of leucorrhœa.

## PROLAPSUS OF THE VAGINA.

This not uncommon affection has often been taken for prolapsus uteri. It is most common in females who have borne children, and are past the middle age, though in many cases it has been known in the young, and before marriage. We distinguish three varieties: prolapsus of the anterior wall of the vagina, or prolapsus vesicæ, or vaginal cystocele, prolapsus of the posterior wall, called vaginal rectocele, and prolapsus of the entire circumference of the vaginal canal.

## VAGINAL CYSTOCELE

Is the most common form, and may arise from any cause which tends to relax the vaginal walls, as repeated child-bearing, difficult labours, etc. This relaxation causes a change in the position of the bladder; there is retention of urine, distending the bladder, and forcing it downward into the vagina. The more the bladder is displaced, the more difficulty there will be in evacuating it, owing to the backward curvature of the urethra; and by its greater weight the vagina is forced still farther downward and forward. If this continue, complete prolapsus will be the result.

## SYMPTOMS.

The patient complains of a constant weight and pressing down into the vagina, a sense of uneasiness and dragging in the lower part of the abdomen, uneasiness and pain in walking, great difficulty in evacuating the bladder, the bladder becoming paralyzed from retention of the urine, and losing its power of contraction; often there is burning

pain in the base of the bladder, with a sense of distention, and constant desire to pass urine. On examination there will be found a soft, elastic, fluctuating tumour of a red or bluish red colour, covered with the mucous membrane of the vagina; the surface of the tumour is smooth and shining when the bladder is distended; but when the bladder is empty, it is thrown into transverse folds. Often there is a discharge from the vagina which is exceedingly irritating to the labia and soft parts.

#### DIAGNOSIS.

This affection may be distinguished from any displacement of the uterus by observing the following points:—The tumour varies in size, in proportion to the quantity of urine retained; it may be decreased by drawing off the urine with the catheter; and if the extremity of the catheter be elevated, its point may be felt in the most depending portion of the tumour. The tumour is soft and fluctuating, and the finger can be passed posteriorly to it up to the os uteri, which will be found in its natural position. It may be known from vaginal rectocele, by the fact that it is softer and fluctuating, and the finger passes into the vagina posteriorly to it, while in rectocele it can only be introduced anteriorly.

#### VAGINAL RECTOCELE.

Prolapsus of the posterior wall of the vagina is less frequent than prolapsus of the anterior; yet it is not an unfrequent affection. The mechanism of this displacement is the same as vaginal cystocele; the posterior wall becoming relaxed, the rectum is distended with fæces, and pressed anteriorly and downward into the vaginal canal. The size of the tumour varies, from a slight tumour projecting into the vagina to its extension between the labia. In its more aggravated form the uterus is frequently dragged down and displaced.

## CAUSES.

The principal cause of this affection is habitual constipation.

## SYMPTOMS.

Weight in the vagina, dragging sensation in the abdomen, increased by walking, habitual constipation, with difficulty in passing the *fæces*, a mucous discharge from vagina, &c. If there is much displacement, there will be *tenesmus*, with a frequent desire to evacuate the bowels, generally fruitless, and accompanied with much pain. The tumour increases in size when the *fæces* have not been passed for some time, and during defecation, and decreases afterwards. A globular tumour may be felt, occupying the cavity of the vagina, compressible but not fluctuating: through its walls *cybalæ* may often be felt.

## PROLAPSUS OF THE ENTIRE CIRCUMFERENCE OF THE VAGINA.

This form of displacement is not very rare, and occurs as the result of great debility of the lining membrane of the vagina. It resembles prolapsus ani, inasmuch as mucous membrane and the cellular tissue beneath it being extremely lax, this cellular structure is morbidly thickened, and so increased in weight, that it overcomes the resistance at the outlet, and prolapsus is the consequence. The prolapsus may be either partial or complete; in partial prolapsus the mucous membrane merely forms a prominence within the *os externum*; while in complete prolapsus the mucous membrane forms a circular tumour, which projects beyond the vulva.

## SYMPTOMS.

The symptoms of this affection vary according to the amount of displacement. In slight prolapsus a feeling of weight and uneasiness in the lower portion of the vagina, a dragging sensation in the lower portion of the abdomen,



&c. In more severe forms of the disease, these symptoms become greatly aggravated; there is a discharge of puriform mucus, obstinate constipation, difficulty and pain in passing the urine, etc. The action of the urine on the tumour, and the friction produced by exercise gives rise to excoriation and inflammation. The tumour has a circular form, with an aperture in the centre. On passing the finger up externally to the tumour, it will be stopped by the cul-de-sac formed between the tumour and the vagina; but by introducing the finger through the central orifice it will pass up to the os uteri.

#### DIAGNOSIS.

It may be distinguished from any displacement of the uterus, by the character of the central opening and by the fact that the finger can be passed up through this to the os uteri.

#### TREATMENT.

The treatment for these various forms of prolapsus of the vagina, consists in restoring the system to its general degree of health by a well-regulated course of regimen and general tonics, such as a liberal use of tonic tea, bebecrine, quinine, hypophosphite of iron, alnuin, helonin, and hamamelin. The bowels should be kept open by means of warm water injections. If there is inflammation in the tumour, hot packs should be applied to the vulva and hypogastrium, and frequently removed. As soon as the constitution has been invigorated, and the inflammation removed, efforts should be made to reduce the prolapsus by lubricating the finger, and making gradual pressure and other manipulations, so as to force the prolapsed folds back to their original position. These attempts, if not successful, should be repeated two or three times a week, and after each effort a hot wet pad should be applied to the vulva, and secured by a T bandage so as to make firm pressure. If this method fail, a large tapering vaginal bougie should be in-

roduced; at the same time gradual upward pressure should be made upon the tumour, when the tumour will be found to disappear, either all together or in part. The bougie should remain for one or two hours, when it should be removed and the vagina injected with a strong decoction of white oak bark and *hydrastis Canadensis*. This operation should be repeated once or twice a week, followed by perineal support and injections until the displacement is overcome; after which the vagina should be strengthened by astringent and tonic washes, and the system thoroughly invigorated. Daily sitz baths, cornin, iron, tonic tea, wine bitters, *hydrastis*, and *einchronia*, will contribute to this end. The cause of the disease should be carefully avoided.

### TUMOURS, MORBID GROWTHS, &c.

Tumours, and morbid growths in the vagina, are said to be of rare occurrence. The cysts met with in this region, are developed in the cellular tissue, external to the vagina, and bear a subordinate relation to the latter. Fibroid productions may be developed in the external layer of the vaginal parietes, and especially at their posterior surface; they then project with a larger or smaller segment, in the shape of round tumours, into the vaginal cavity. In other instances they are developed in the cellular tissue, that is interposed between the vagina and rectum, and though in close relation to the vagina in point of origin, project chiefly into the rectum, and more or less obstruct its inferior portion. Warty tumours are sometimes developed from the vaginal mucous membrane; oftener, perhaps, from syphilis than any other cause; they are generally found in the external or vulvular portion of the canal.

### DIAGNOSIS.

Encysted tumours of the vagina may be distinguished from vaginal enterocele, by its more circumscribed form, and from the fact that coughing produces no enlargement in it.

It may be distinguished from other disease of these parts, by its circumscribed form, its consistence, and by the fact that its exact location can be discovered by an examination of the rectum, or by a sound introduced into the bladder. The diagnosis of fibrous tumours may be the same as that already pointed out. It is only to trace their exact size and location, and the fact that no other disease of the genital organs exists.

#### TREATMENT.

Cauterize the tumours, and apply elm poultices.

#### VESICO-VAGINAL FISTULA,<sup>1</sup>

Is an opening between the bladder and vagina, through which the urine passes involuntarily. The passage of the urine through the fistula, into the vagina, produces a constant irritation of the mucous membrane and vulva, excoriation, pruritus, &c. If the opening be small, and toward the outer extremity of the vagina, it will be but mild in comparison with those cases where the opening is large. In these last cases the urine cannot be retained for a moment, for as fast as it is secreted it passes down the bladder and escapes.

#### CAUSES.

The most frequent cause is, the long impaction of the head of the child in the pelvis during labour, the long continuous pressure, producing inflammation, which may terminate by sloughing and perforation—careless, or improper use of instruments during labour—the long-continued presence of a pessary in the pelvis.

Retention of urine during labour, or the presence of calculus, will generally involve more or less pressure, and give rise to subsequent inflammation. Retention of urine, if it be excessive, causing the bladder to project into the pelvis, so as to be pushed before the head of the child, will, most probably, prevent delivery, and occasion rupture of the bladder.

Vesico-vaginal may result from venereal ulceration, cancer of the uterus, or vagina, etc.

#### DIAGNOSIS.

A careful examination of the vesico-vaginal wall should be made by introducing a sound into the bladder, turning its point downward, so that it may be felt by the finger of the other hand, introduced into the vagina, and with the finger against the sound, examine the base of the bladder over its entire extent. If there be an opening, the finger will come in contact with the sound at some point. If an opening be found, the vagina should be carefully examined by the speculum, in order to detect its true character and position. If there be any suspicion of laceration after labour, the fact should be ascertained as soon as possible, as the circumstances attending recent parturition are all favourable to cicatrization. The vagina is relaxed and capacious, and, owing to the weight and size of the uterus, having as yet prevented the return of the parts to their usual height in the pelvis, any wound of the urethra or vagina will be far more easily seen, and effectually treated than when the torn edges have become separated and cicatrized.

#### TREATMENT.

The treatment for vesico-vaginal fistula consists in the use of such medicines as will restore the health of the patient. Strict attention to cleanliness, the frequent use of warm water injections, or, to prevent the irritating effects of the urine upon the vagina, a catheter may be introduced into the bladder, and secured, at the same time plugging the vagina, with lint, lubricated; cure has been effected by this method. Another method is, to cauterize the edges of the fistula; then apply the catheter and tampon as before. The caustics used, are nitrate of silver and potassa. Another plan is, to pare off the edges of the fistula and introduce sutures to approximate the opening edges; intro-

duce a catheter, and treat the case as before. Dr. Sims uses the clamp suture, which consists of silver wire, and applied like the quilled suture. Iron, quinine, aluina, and cod liver oil should be given internally.

### RECTO-VAGINAL FISTULA.

This is an unnatural opening between the vagina and rectum, which gives rise to an involuntary discharge of flatus and fæces. They are generally longitudinal in direction, and may depend on the following causes: from prolonged pressure of the child's head during labour, or from the careless use of instruments; from laceration during delivery; from a recto-vaginal abscess; from a pelvic abscess, which opens in two directions, perforating the vagina and bowels; from stricture or other disease of the rectum; from cancer, or corroding ulcer of either rectum or vagina, and from syphilitic ulceration. This disease, though a source of constant annoyance, if the opening be large, admitting of involuntary discharge of fæcal matter through the vagina, a continuous irritation is kept up, which sometimes runs into a severe erythematous inflammation. If the existence of the local injury does not affect the general health of the patient, the distress of mind occasioned by her unpleasant condition is generally sufficient to do so. The seat and character of this fistula are ascertained by an examination per rectum and vagina. After the position of the vaginal opening has been ascertained by means of the speculum, introduce the finger into the rectum, and pass a probe from the vagina, through the fistula, until it can be felt in the rectum; by this means the character of the opening can be determined. If by any means the probe cannot be passed through the fistula, injections passed through it will enable the operator to determine its course.

### TREATMENT.

The same as in vesico-vaginal fistula, and with tonics and alteratives.

## LACERATION OF THE VAGINA.

This may be caused by forcible expulsive efforts during labour, or by the improper or careless use of instruments. The laceration may be complete; the whole of its coats giving way, and forming an opening into the bladder in front, the rectum behind, or into the abdominal cavity above; or it may be partial, affecting only the mucous membrane, or it and the middle coat. Either of these forms may exist without laceration of the perineum. Complete laceration of the vagina in front and behind have already been described under the head of recto and vesico-vaginal fistula. Rupture of the upper portion of the vagina is of very rare occurrence. This accident would be dangerous, producing peritonitis, and should be treated on general principles. A laceration may exist when the medical attendant is not aware of it, the pain the parts suffer during labour being but little increased by the parts giving way. Careful examination of the parts should be made after labour, to ascertain if any lesion exists, as attention to it is of the utmost importance, while the parts are yet soft, and before inflammation supervenes.

## TREATMENT.

The treatment consists in subduing the inflammation and preventing the vagina from occlusion by adhesion.

## LACERATION OR RUPTURE OF THE PERINEUM.

This accident, when severe, is one of the most distressing occurrences attendant upon labour. Slight laceration often happens in first labours, but the parts generally heal themselves. Again, the entire destruction of the perineum may take place, laying the cavities of the vagina and rectum into one. Four varieties of ruptured perineum are noticed. Where the perineum is torn to the extent of an inch or more from the fourchette,—this is of but little moment. Where the perineum is torn between the sphincter-ani and



the constrictor vagina. Where the laceration occupies the entire length of the perineum, but does not penetrate the sphincter ani. Where it extends so as to divide the sphincter ani, and even the recto-vaginal septum.

#### C A U S E S .

If the sacrum be too perpendicular, the head of the child, instead of receiving a direction anteriorly in the line of the axis of the lower outlet, will be forced downward upon the posterior portion of the perineum. If the arch of the pubis be too acute, so as to prevent the presenting portion from filling the upper part, extraordinary dilation of the orifice of the vagina will be necessary, and the head will be pressed with unusual force upon the anterior part of the perineum. A similar effect is said to be produced by a thickened state of the perineum and circumjacent parts of the pubis. The too rapid passage of the head may be attended with this accident. Exostosis in any part of the pelvic cavity, may so act upon the direction in which the foetal head is propelled, that rupture of the perineum is the result.

#### T R E A T M E N T .

To remove this difficulty, the surface should be made fresh, interrupted sutures should be applied in sufficient number to bring the parts firmly in apposition. To maintain the parts in contact, and insure union, the sutures may be fastened to two small pieces of bougie, one placed on each side of the perineum. After the introduction of the sutures, cold packs should be applied, to prevent excessive inflammation. The urine may be evacuated with the catheter, and the bowels kept quiet with small doses of opium.

#### P E L V I C C E L L U L I T I S , I N F L A M M A T I O N O F T H E C E L L U L A R T I S S U E .

Inflammation, as a consequence of parturition, is liable to occur in the cellular tissue, between the intestinal, genital



and urinary canals; between the two folds of the peritonæum, forming the broad ligaments, and between the fascia pelvica and parts invested by it. Though it cannot be said to be a very fatal affection, yet it is in many instances of long continuance, and greatly affects the general health.

#### CAUSES.

It is probably of more frequent occurrence as the result of labour than from any other cause, either as a consequence of long continued pressure of the child's head on the tissues of the pelvis, or as the result of puerperal inflammation. It may, however, result from ordinary labour. It may occur a considerable time after labour, or it may attack these tissues independently of the puerperal state in married or unmarried women. In the last case it may result from the extension of inflammation of the uterus, Fallopian tubes, ovaries, vagina, &c., or as the result of a fall, a kick, a blow, etc., or from exposure to cold, &c.

#### TERMINATION.

This affection after passing through the different stages of inflammation, terminates favourably under judicious treatment, or there may be organization of the inflammatory product, and hypertrophy of the mass of cellular tissue; the uterus may adhere to the walls of the pelvis, or adhesion may take place between the ovaries and Fallopian tubes, and the other pelvic viscera, or the walls of the pelvis. An abscess is sometimes the result, which may form and discharge itself into the vagina, rectum, bladder, uterus, &c., the pus passing off through the various outlets of the several organs. It seldom discharges itself into the peritonæum, but if this should occur, severe peritonitis is the result. Sometimes the openings which these pelvic abscesses form for themselves, become fistulous, and are difficult to cure.

## SYMPTOMS.

The symptoms at first resemble those of inflammation of any of the pelvic organs. There is weakness, pain in the limbs, headache, loss of appetite, etc.; the pulse is accelerated; there is thirst, dry skin, and restlessness. Pain extends in all directions, from the seat of inflammation, and there is a sense of weight, and dragging down in the pelvis, which is increased by the upright position. The irritation extending to the bladder and rectum, or the pressure of the abscess upon these organs occasions at times great distress by causing a constant desire to pass water, or calls to evacuate the bowels, which is sometimes attended with great difficulty. The disease may terminate in resolution, and gradually diminish, until the tumour entirely disappears. Or if it terminates in suppuration, there is a throbbing pain, with chills occurring at regular intervals, usually in the evening.

## TREATMENT.

The bowels should be opened by an active purge of *podophyllin* and *anti-bilious physic*. At the same time the entire pelvis should be wrapped in a hot pack, which should be changed as often as it gets cold. After the action of the purge, small doses of *veratrum viride* should be given, and repeated until the inflammation is controlled. If abscess should occur, it may be treated as directed under that head.

## OCCLUSION OF THE OS UTERI.

This may be congenital, or the result of disease, and partial or complete. The symptoms do not manifest themselves until after the age of puberty, when, if this difficulty be present, there will be no appearance of the menstrual discharge; yet the symptoms accompanying menstruation will be present at the recurrence of each period.

The symptoms of occlusion of the os uteri are weight

and pain in the loins, and finally the appearance of a tumour in the upper portion of the pelvis, resembling the impregnated uterus.

#### TREATMENT.

In most cases the occlusion may be overcome by a uterine sound, which should be pressed through into the uterus. If this do not succeed, an opening should be made with a trochar.

#### PHYSOMETRA, OR TYMPANITIS UTERI.

This is an accumulation of gas in the uterine cavity, supposed to arise from the decomposition of some substance in the uterus. This gas is sometimes retained for several months, and then expelled; at other times it is expelled with a noise many times a day.

#### CAUSES.

The retention of the membranes after labour, the placenta, a dead foetus, or of secretions, as the lochia, menstrual discharge, etc.

#### SYMPTOMS.

Distention in the hypogastric region, with pain, extending from the womb towards the groin, thighs, &c. Generally the menses are suppressed, the abdomen enlarges, and is tympanitic. There are sometimes febrile symptoms, and it is not uncommon for the breasts to become enlarged, and to secrete a milky fluid. The expulsion of gas at the vulva gives relief. It is rare for gas to be retained in the uterus more than five or six months; frequently not so long.

#### DIAGNOSIS.

It may be distinguished from pregnancy by the resonance of the tumour, and the absence of foetal movement. Its resonance also distinguishes it from all other tumours.

## TREATMENT.

To give immediate relief a catheter may be introduced into the uterus, and the gas evacuated. Afterwards the cause should be removed, uterine tonics and an invigorating course of medication should be instituted.

## HYDROMETRA — UTERINE DROPSY.

This is an accumulation of fluid in the uterus; sometimes underneath the mucous membrane, sometimes in the uterine cavity, and sometimes in hydatids. Cases are known of both air and water in the organ. Internal metritis gives rise to this disease by causing contraction of the os internum of the cervix, and retention of the secreted fluid, which, increasing in quantity, a change takes place in the secreting surface, by which a colourless, albuminous fluid is exuded. This fluid is sometimes evacuated in large quantities.

## CAUSES.

Inflammation of the uterus, constitutional debility.

## SYMPTOMS.

During the first months the symptoms resemble those of pregnancy. By introducing a finger, so as to touch the cervix uteri, and pressing the tumour with the other, the fluctuations of a fluid are felt. The menses are usually suppressed, and general constitutional debility will appear if the disease continue. The patient may die from exhaustion, or the walls of the uterus may give way from the pressure of the fluid, causing fatal peritonitis by its escape into the peritoneal cavity.

## TREATMENT.

The water may be evacuated with a catheter, the cause of the disease removed, and a tonic and hygienic course of treatment prescribed.

## ANTEVERSION AND ANTEFLEXION OF THE UTERUS.

The existence of anteversion was first verified by Levret. Retroflexion was not recognised as distinct from retrover-

Fig. 113.

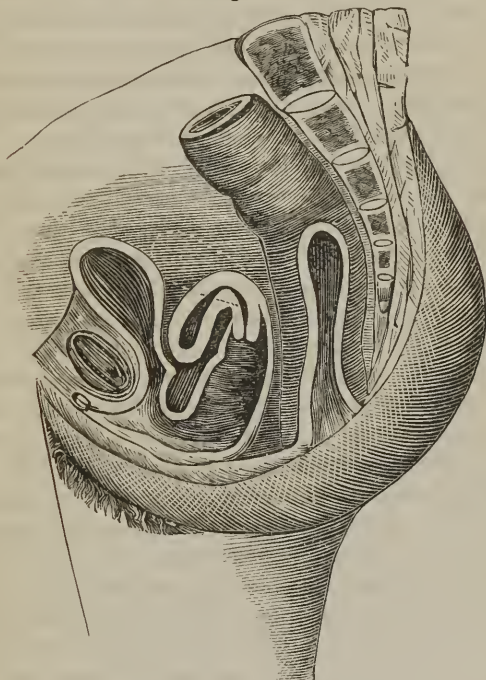


Fig. 113. ANTEFLEXION.—The womb is seen in the state of complete anteversion—the second degree, or complete anterior reduplication—it falling into a cavity between the anterior wall of the vagina, and the posterior wall of the bladder. The dotted lines show the position of the body of the uterus in the first degree of anteversion. Neither the uterus itself, nor the dotted lines are placed sufficiently low; and the rectum being represented as distended, the position of the first degree of anteversion appears to be nearly coincident with the normal position of the uterus. Generally in anteversion the uterus is inclined to one side, and the bladder to the other.

sion for many years afterwards; and even now, by some writers, the word retroversion is made to include both displacements. The distinction is not so indispensable in a practical point of view as between retroversion and retroflexion, but should be kept constantly in view. They are not any more than the posterior displacements, merely different degrees of the same thing, and anteversion, like reflexion, most frequently follows parturition, either premature or otherwise; while ante flexion is, and even more than retroflexion, most frequently independent of it.

1st. In ante flexion the body only of the uterus falls forward, the cervix still preserving its normal position in the pelvis; the point of flexion being always at the junction of the body with the neck. In anteversion the whole uterus is displaced forward, but without any flexure of the body upon the neck; so that it comes to assume an antero-posterior position in the pelvis, the fundus pointing forward.

We recognise but two degrees of each of these displacements. In the *first* degree of each, the body of the uterus falls forward upon the posterior wall of the bladder (if somewhat distended,) so that its axis prolonged would fall below the middle point, between the umbilicus and the symphysis pubis. In case of ante flexion this would cause a bend of the body upon the cervix at about a right angle. In the *second* degree of both, the fundus points towards the symphysis pubis. In anteversion it crowds the posterior wall of the bladder forwards into its cavity; while in ante flexion it falls down between the anterior wall of the vagina and the neck of the bladder, (after stretching the areolar tissue connecting them,) and thus a complete reduplication of the uterus anteriorly ensues. In retroversion, the neck of the uterus is also displaced backward, looking, in the second degree, towards the hollow of the sacrum; while it is not displaced at all in ante flexion.

We must, however, admit, as in case of the displacements backward, every possible grade of malposition between the



first degree of anteversion, and complete anterior reduplication. We also very often find some degrees of prolapsus accompanying anteversion, and, rarely, anteﬂexion also. In regard to the frequency of the anterior and posterior displacements, in my opinion the latter are the most numerous. In those who have borne children I have found anteﬂexion more frequent than retroﬂexion. Both anteversion and retroversion are rare in this class of patients.

After parturition (premature or otherwise) anteversion is more common than retroversion or anteﬂexion, but perhaps not more common than retroﬂexion. Retroﬂexion is far more common than retroversion in the natural state of the parts. Anteﬂexion is more common than anteversion, while the parts concerned are in their normal condition, but anteﬂexion more frequently occurs as a sequel of parturition.

Valleix found that of 68 displacements, 35 were anterior, (24 of anteversion, and 11 of anteﬂexion,) and 33 were posterior, (12 of retroﬂexion, and 21 of retroversion.) M. Boulard finds that, in females who have never borne children, the majority have anteﬂexion.

The *direct* causes of anteﬂexion and anteversion include all agencies which carry the body of the uterus forward and downward, and may be either uterine or extra-uterine. The former are congestion or inflammation of the body of the uterus (or of the posterior wall alone,) a fibrous tumour in the latter or in the posterior wall, if large enough to crowd the whole uterus forward; polypus uteri, and hypertrophy from previous inflammation, or from arrested involution after parturition, and early pregnancy, as before explained.

The predisposing causes are relaxation of the broad ligaments, or increased weight of the uterus from any cause, and especially from parturition.

Of anteversion in the second degree, the most common symptoms are the following: Frequent micturition, perhaps, also, rectal tenesmus, and especially during the catamenial period; a bearing down sensation; pain in the lum-



bar and inguinal region, and down the limbs; sometimes a feeling in the rectum from direct pressure against the cervix; and constipation from torpor of the muscular coat of the alimentary canal. All these are increased during the menstrual period, and by standing, and walking, and diminished, while in a recumbent position. Generally leucorrhoea also exists, and menstruation is abnormal.

The *physical* signs of anterior displacements are alone conclusive, as in the case with the posterior. The first de-

Fig. 114.

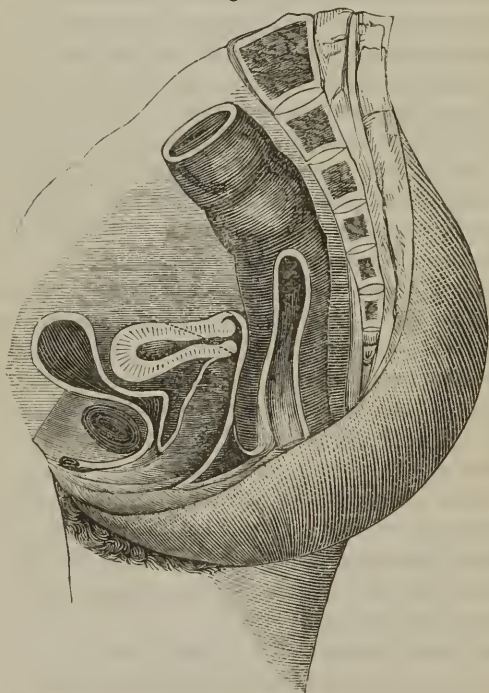


Fig. 114. ANTEVERSION—Showing the first and second degree.—

gree of anteversion or anteflexion may afford no symptoms, and therefore in most cases escape detection. In the former, however, there will be found a backward displacement of the cervix on making a vaginal examination; but the sound alone will generally give evidence of the latter.

In the *second* degree of *anteversion* a vaginal examination shows that the uterus lies horizontally in the pelvis, the os pointing back towards the rectum, and the fundus forward towards the neck of the bladder; consequently, the curve of the vagina is changed, its upper extremity to far backward. Often the finger may trace the whole length of the uterus on its anterior (now its inferior,) surface. Frequently the os uteri is carried so high posteriorly as with difficulty to be reached, but the sound is very seldom required to verify the complete anteversion.

In the *second* degree of *anteflexion*, or complete anterior reduplication, the os and cervix are found in the normal position in the vagina, though the upper extremity of the latter is often carried a little backward, while the fundus is felt as a firm, rather tender, rounded tumour, lying between the anterior wall of the vagina and the bladder. Sometimes, however, the fundus is quite insensible to pressure, and thus might be easily mistaken for a fibrous tumour in the anterior wall of the uterus: besides, since only the anterior wall of the vagina intervenes between the cervix and the fundus, the latter may seem at first to be continuous in structure with the latter, and thus farther confirm the suspicion of a fibrous tumour. *Per rectum* the os uteri may be felt projecting backward in the second degree of anteversion; but no positive knowledge is acquired in this case of anteflexion. But if any doubt remain, the *uterine sound* decides the diagnosis.

In using this instrument in case of *anteflexion*, we introduce it with the concavity upwards, as if the uterus were in its normal position, the patient lying on the back, and

when the bulb is arrested on reaching the point of flexion, the handle is depressed, and thus the instrument passes into the proper cavity of the organ.

#### DIAGNOSIS OF ANTEFLEXION AND ANTE-VERSION.

1st. *From fibrous tumours in, or inflammations of the anterior wall of the uterus.* The fundus uteri is usually tender in tumours, usually not so, but the sound decides in both cases. This localized inflammation, however, but rarely occurs. 2d. *From early pregnancy.* All the signs of pregnancy are wanting, therefore the sound being used decides. If there be any doubt as to pregnancy, wait; at any rate, do not use the sound. Sound shows the uterus is *in situ*, but enlarged, and its cavity elongated. 3d. *From carcinoma of the uterus.* Carcinoma almost always invades the cervix uteri first; but use the sound. 4th. *From an ovarian (or other pelvic) tumour.* The sound isolates the uterus from the tumour. 5th. *From extra-uterine pregnancy.* There again the sound isolates the uterus, if in its normal position, from its extra-uterine mass. 6th. The anteflexed uterus sometimes inclines to one side, and may be mistaken for a *displaced* ovary; the sound decides.

#### TREATMENT OF THE ANTERIOR DISPLACEMENTS OF THE UNIMPREGNATED WOMB.

Of the *local treatment* of the anterior displacements, the indications are as of other displacements, threefold. 1. To remove the cause of displacement, and certain complications, if still existing, and in action. 2. To replace the uterus. 3. To retain it in its position. 4. *Remove still active causes or complications.*

2. *Replace the uterus.* To effect this the patient may lie upon the back with the pelvis raised, and in case of *anteversion* the cervix may be brought forward by means of the

fenestrated spoon, as described by Madame Boivin. A long index finger may unaided accomplish this ; or, these means failing, the uterus sound, passed an inch into the canal of the cervix, may bring the os into position. In case of *anteflexion* we may, also, sometimes elevate the fundus uteri to the first degree of the displacement, by pressing against it with the index finger in the vagina. But neither in *anteflexion* nor *anteversion*, can we, with certainty, restore the uterus to its normal position by any other means than the use of the uterine sound.

3. *Maintain the uterus in its position.* In these displacements, as in *retroversion* and *retroflexion*, the womb, except in rare instances of *anteversion*, suddenly induced returns, nearly, if not precisely into the position it before occupied, instantly, or at most a few minutes, after the sound (or other force which replaced it) is withdrawn.

In the *palliative* management of *anteversion* a simple ring pessary of tin or gutta percha, large enough fully to distend the upper extremity of the vagina, and thus pull the os uteri forward, is to be used.

We need not be very strenuous respecting the precise form of the instrument used, provided it fits well. It may, however, prove valuable in three ways. 1st, By pulling the os uteri forward, conception may occur in a patient previously sterile. 2d, It keeps the uterus more nearly at rest, and thus gives great relief, if there be irritation from inflammation or congestion. 3d. It relieves the slight degree of descent which often accompanies *anteversion*, and which not seldom is the main cause of the patient's suffering.

In case of *anteflexion* in those who have never been pregnant, and in whom the vagina is narrow, and still retains its natural tone, I have found a more simple instrument, which is made of pure silver, and consists of a stem (a tube)  $2\frac{3}{4}$  inches to 3 inches long, and  $\frac{3}{16}$  inch in diameter, passing centrally through two flattened bulbs. The smaller of them about  $\frac{5}{8}$  of an inch in diameter, is placed about  $2\frac{1}{4}$  inches

from one end of the tube; this free portion of the tube being the stem, or intra-uterine portion of the instrument, while the other bulb, one inch in diameter, is placed at the other end of the tube.

When the instrument is introduced, the smaller bulb supports the os uteri, while the larger (one half inch below the other) rests on the posterior wall of the vagina above the levator ani. It is passed into the uterus on a staff. A silk thread is passed into it, so that the patient may remove it at any time, if this become necessary.

### RETROVERSION OF THE UTERUS.

Retroversion of the uterus consists in a displacement of the fundus uteri backward, the cervix being carried forward against the bladder, the uterus assuming a transverse position.

#### CAUSES.

The causes of this form of uterine displacement, are a weakness of uterine organs, long continued distention of the bladder, abortions, chronic inflammation of the uterine organs, violent vomiting, &c., &c.

#### SYMPTOMS.

The most common symptoms of retroversion of the uterus, are such as exist in the early stages of pregnancy, viz., dyspepsia, dragging pains in the hip, neuralgia, hysteria, nervous debility, and if the disease should continue, bronchitis and consumption often follow. If retroversion occur during early pregnancy, in addition to the above symptoms, there will be either partial or complete retention of the urine, and by manual examination a tumour will be felt, which is tender on pressure. Anterior to this tumour may be felt the cervix uteri.

#### TREATMENT.

One of the first things to be attended to in the treatment of this disease, is the replacement of the uterus. To do

this make a gentle rotary motion with the hand upon the abdomen, and at the same time elevate the uterus and carry it back into its proper position, when the pad and bandage should be applied, as directed in the treatment of prolapsus uteri. In connexion with these mechanical means, female injections composed of equal parts of cold infusion of Peruvian bark and golden seal should be used frequently through the day.

The body should be frequently sponged in cold water, followed by brisk friction with the hand or towel, and the following tonic bitters should be administered. Take one pint of best port wine, one drachm of precipitate carbonate of iron, one half ounce of pulverized unicorn root,

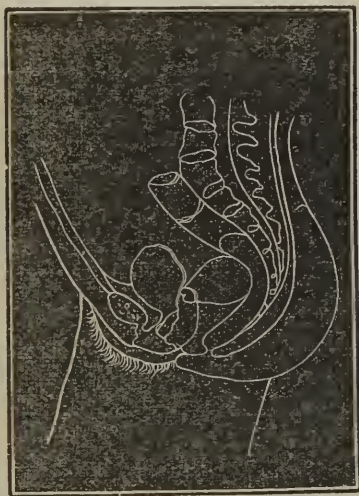


Fig. 115.—Anteversion of the Uterus.

and one half ounce of life root. Mix, and allow the patient to take from a table spoonful to one wine-glassful three times a day. Small doses of helonine and rhusin, or senecine in combination with pyrophosphate of iron, may be used with the bitters, or instead of the bitters.



## ANTEVERSION OF THE UTERUS.

By anteversion of the uterus, is understood that condition in which the womb is so displaced that the fundus rests against the symphysis pubis, and the cervix against the rectum.

By reference to Fig. 115, it will be seen that the os uteri is turned upward and forward, resting against the bladder. In retroversion of the uterus the position is reverse.

## SYMPTOMS.

The symptoms of anteversion of the uterus, are almost precisely the same as those described under the head of retroversion of the uterus, and the only difference in the treatment, is in the manipulations to replace the uterus.

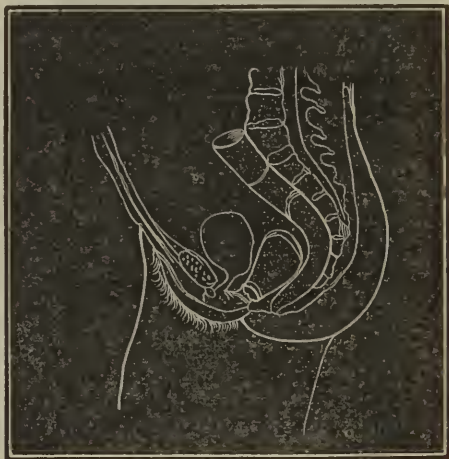


Fig. 116.

Fig. 116 shows the falling of the womb, pressing the bladder forward, and upward, and pressing the rectum back against the bony structure, and the mouth of the uterus to the lower portion of the vagina.



## HYDATIDS OF THE UTERUS.

The formation of small cysts or bladders of water in the uterus, are by no means uncommon. They are mostly developed from the inner membrane, and vary in size from half a pea to a partridge's egg. They are usually oval, with a thin wall, opaque, and contain a thin pellucid fluid. They may be numerous or few in number. More frequently, however, they are in clusters, and numerous.

## SYMPTOMS.

The symptoms of hydatids are frequently those of early pregnancy. Such as nausea, vomiting, enlargement of the uterus, fulness of the breasts, suppression of the menses, &c. In from two to five months the patient feels weight and uneasiness about the abdomen, which is usually followed by uterine pains, hemorrhage, and expulsion of the hydatids.

## TREATMENT.

If the flooding be excessive, from five to ten drops of the oil of erigeron should be given, repeated every ten or fifteen minutes, until the hemorrhage is controlled. If the pain should not be sufficient to expel the cysts, a warm infusion of equal parts of blue cohosh and cotton root, should be given in one or two ounce doses, every twenty or thirty minutes, until the uterus seems to be entirely evacuated. Or give the following compound.

R. Caulophyllin, ..... gr. x.  
 Gossypium, ..... gr. xx.  
 Sac. alba, ..... gr. xxx.

M. Triturate, and divide into five powders. Give one every ten or fifteen minutes, until the hydatids are all expelled.

The patient should afterwards be treated with chalybeates and tonics.

## NEURALGIA OF THE UTERUS.

By neuralgia of the uterus, is understood a sharp violent pain in that organ, usually occurring very suddenly; of a rheumatic character. It usually attacks girls shortly after puberty, and is dependent upon derangement of the uterine function.

## SYMPTOMS.

The patient may be perfectly well apparently, and may be attacked with violent lancinating pain in the uterus, which usually lasts for a few minutes only, but soon returns, assuming a regular periodical character. In some cases it is connected with hysteria, the patient becoming excessively nervous, and the pain moves to different parts of the body.

## TREATMENT.

A pill made in the following manner, is almost a specific in the above disease. Take the extract of garden lettuce, thirty grains; gelsemin, one and a half grains; dioscorin, ten grains. Mix, and form ten pills, and give one every hour until the pain subsides.

To prevent a return of these attacks, one or two moderate doses of quinine and prussiate of iron should be given two or three times a day, for eight or ten days.

## PUERPERAL FEVER.

This is a very fatal disease, which frequently follows parturition. In certain seasons and districts it prevails as an epidemic, and is very fatal in its effects. During certain seasons and particular localities it is so uniformly prevalent and fatal that many physicians suppose it to be carried by the attendant from one patient to another.

The most minute examinations into the cause and nature of this disease have not been able to detect any condition or symptom that is not occasionally found in cases of malignant inflammation of the uterus, peritoneum, and other internal organs. The disease then being of a malignant

form, the question arises, What are the causes of the disease, and why does it prevail as an epidemic?

Having had large opportunities to make observations, I have to my own satisfaction ascertained what many writers deem mysterious, viz.: the cause of puerperal fever.

#### CAUSE.

So far as my own observations have extended, and so far as I have been able to learn from others, child-bed fever in nearly every case attacks persons who are of a scorbutic habit—or, in other words, those who have been deprived of a sufficient quantity or quality of succulent vegetables, for the lack of which the blood has become vitiated, and the entire system exhibits that condition which is known as land scurvy or purpura, in all cases of which this condition of the system exists. The gums become spongy, the digestion impaired, bowels irregular, urine scanty and high-coloured, &c. This condition of the system not only manifests itself in feeble vital and physical forces, but this crasial state of the blood produces in the venous capillaries a species of capillary phlebitis, or a diseased condition of the minute venous vessels. During labour this vitiated and impoverished blood is forced into the minute vessels of the uterus and peritoneum, and occasionally into other organs. The result is that they have no power to unload themselves when labour is over, nor has the uterus power to expel or throw off the effete matter remaining in it. After the expulsion of the foetus and secundines, a rapid disorganization of the congested vessels occurs, and mortification and death follow.

That this scorbutic condition of the system exists previously to, and at the same time that the epidemic of child-bed fever prevails, only requires observation to confirm. That child-bed fever will not occur if this purpuric condition be removed previously to child-birth, can be shown by the most ample testimony. This hemorrhagic or purpuric

condition may be removed by a free use of fresh vegetables, fruits, tonics, chalybeates, pure air, baths, &c.

#### SYMPTOMS.

The symptoms of child-bed fever are somewhat various, as the disease manifests nearly every degree of intensity, from a very mild sporadic form, to the most severe epidemic form of the disease.

The usual symptoms are, weight and soreness in the lower part of the abdomen, accompanied by lassitude and debility, capricious appetite, imperfect lochia, spongy condition of the gums, constipated state of the bowels, and scanty and high-coloured urine. These symptoms will usually continue for two or three days after delivery, when the patient will be seized with chills and rigours, which may be so slight as scarcely to be observed by the patient, or they may be so severe as to amount to a regular ague-shake. These rigours and chills are soon followed by a hot and pungent condition of the skin, pain in the head, loss of appetite, nausea, and, in some cases, vomiting. The pulse becomes hard and quick, respiration hurried and irregular, the secretions are arrested, the urine is scanty and high-coloured, the tongue is clammy and covered with a white coat, and in the course of a few hours the pain becomes concentrated in the lower portion of the abdomen, and is very severe. The bowels are tympanated, or bloated, and very tender, and the discharge of the lochia and the secretion of milk are suppressed. In some cases the mind becomes affected, and often there is delirium. Especially is this the case in the latter stage of the disease. If the disease be allowed to continue, symptoms of great prostration manifest themselves, and in the course of a few days mortification and death close the scene. In other cases, inflammation assumes more of a chronic form, resulting in effusion into the abdominal cavity, and terminates as de-

scribed in another part of this work, under the head of empyema.

#### TREATMENT.

The most salutary treatment during the first stage of this disease is to give a free podophyllin and cream of tartar purge, followed by aconite or veratrum to control the fever. In the selection of the fever remedy, the attendant should be governed by circumstances. If the fever be of a high grade, and the patient of a full plethoric habit, veratrum is the remedy—but if the vital powers be feeble, and the fever of an adynamic type, use aconite. In connexion with the above remedy, hot packs should be applied to the bowels, and the vagina should be frequently injected with warm slippery elm emulsions by means of a female syringe. If the lochia be scanty or suppressed, a warm mustard poultice should be applied to the breast, followed by hot packs covered with oiled silk or flannel. As soon as the bowels are evacuated and the other conditions have been attended to, the patient should take quinine and muriate tincture of iron, from three to five grains of quinine every two or three hours, alternated with from ten to twenty drops of muriate tincture of iron. The quinine and iron should be continued for twenty or thirty hours, and then omitted for a short time, to be repeated in a few days, unless the symptoms become very much mitigated. During the treatment, the patient should be allowed lemon juice, fresh fruits and vegetable soups.

Where there is tendency to gangrene, in addition to the quinine and iron, one or two grains of baptisin in a tablespoonful of wine and yeast may be given three or four times a day—also, charcoal and yeast poultices should be applied to the bowels.

If the mustard poultice and hot packs applied to the breast do not produce a return of the lochia, one or two grains of senebina and a wine glass full of strong infusion

of cotton root should be given, two or three times a day. If there be extensive fetid discharge following the use of these remedies, as there frequently is where the uterine capillaries are very much diseased, the powers of the uterus should be supported by bebeerine, macrotin, and phosphate of iron. If there be violent pain and nervous prostration, lupulin and gelsemin are the remedies. As already stated, where the disease proves obstinate, the quinine and iron should be repeated. The bowels should be kept regular, and the skin should be thoroughly cleansed from day to day with soda water. The above treatment, together with such other remedies as may be indicated by the complication of the disease, has been most triumphantly successful when all other remedies have failed. Although I have treated a large number of cases of both the sporadic and epidemic forms of the disease, yet I have not lost a case, nor have I ever known the treatment to fail in the hands of others when properly applied.

### ABORTION.

Abortion (*abortio*) signifies the expulsion of the fœtus from the uterus, before it is sufficiently developed to maintain independent life. When the product of conception is expelled between this period and the full period of pregnancy, it is called premature labour. The causes of abortion may be either natural or violent. Among the most prevalent causes, are mercury, bleeding, constitutional syphilis, either in father or mother, small-pox, sudden and violent excitement of the blood vessels by surprise, anger, &c. Abortion may also be caused by disease or death of the embryo, by disease of the secundines, or by direct violence to the abdomen, &c., &c. In addition to these causes, there is a variety of medicines used by professional abortionists, such as spurred rye, turpentine, oil of tansy, savin, &c. Mechanical means are also resorted to for the pur-

pose of rupturing the membranes. These means are mostly used to produce criminal abortion, and are not only disgraceful to persons employing them, but criminal in the eye of the law of our country, and of God. What is termed the normal cause of abortion is by no means unfrequent in this result. Dr. Whitehead, in his treatise upon this subject, states that in 2000 cases, one in seven terminated in abortion.

#### SYMPTOMS.

When abortion occurs in the early stage, the patient feels languid, uneasy, and despondent, and is troubled with chills, alternated with flashes of heat; there is nausea, palpitation, pain in the back, and tenderness over the abdomen. The breasts become flaccid, and there is more or less hemorrhage. In the more advanced stage, the pains are more severe, and frequently the hemorrhage is violent, so much so that in many cases, unless proper remedial agents be employed, the life of the patient is jeopardized.

#### TREATMENT.

Females who are predisposed to abortion, should carefully avoid every variety of active purgative, and all diuretic medicine, also violent exercise, and should take one or two cold sitz baths every morning on rising, followed by brisk friction, with a crash towel: also take one tablespoonful of the mother's cordial three times a day. Or if the cordial is not at hand, take five or ten grains of triturated aletrin, and one or two grains of triturated bebeerine instead. The patient will also find much relief by placing a wet pack over the lower portion of the abdomen, securing it firmly by a bandage, passed around the body. Pain may frequently be arrested by giving one or two grains of the triturated hyosciamin, every two hours, alternated with hamamelin. To check hemorrhage, give five or ten drops of the oil of erigeron, or fleabane, every ten or fifteen



minutes until it is arrested. If this should not accomplish the desired effect, give five or ten grains of capsicum, in connexion with one or two grains of matico. If, in spite of all these remedies and such other means as the judgment of the attendant may devise, the tendency to abort be still persistent, and the indication be that the ovum is detached from the uterus, the patient should drink a strong decoction of cotton root, (*gossypium herbaceum*;) every fifteen or twenty minutes, until the fœtus is expelled. Or if this should fail, the feet should be placed in warm water, and a warm mustard poultice should be applied to the breasts. After bathing the feet, the patient should take a warm sitz bath, and drink freely of warm pennyroyal tea, in connexion with the cotton root. At the same time, the oil of erigeron should be given to control the hemorrhage. After the fœtus is expelled, much care should be observed, until the placenta is removed. If this should not occur in a few days, the treatment should be the same as for the expulsion of the fœtus, using the same remedies to arrest the hemorrhage. During convalescence, the bowels should be kept regular, and small doses of precipitated carbonate of iron in connexion with bebeerine and rhusin should be given to maintain the patient's strength, and to prevent uterine weakness, which so frequently results from this cause.

#### DISEASES OF THE FEMALE BREASTS.

During and after pregnancy the mammary glands, which in the virgin state are small, soon become very much enlarged by the new movement of the system, which always exists in pregnancy. In some cases they become inflamed and painful. This also frequently occurs previously to menstruation, and I have seen several cases of abscesses occurring, in the breasts, both during the earlier stages of pregnancy and menstruation. Such is the relation between the breasts after puberty and the ovaries and uterus, that whatever effects or produces changes in one, causes more or less disturbance of function in the other.

INFLAMMATION AND ABSCESS OF THE  
BREASTS.

Inflammation of the breasts does not differ materially from inflammation of other tissues, save the more general influence upon the nervous system, owing to the extensive communication of the breasts with the great nervous centres. In inflammation of the breasts the capillaries become over-loaded, and the vessels being weak, the blood accumulates, until finally the inner coats become diseased, the blood stagnates, and actual inflammation is said to exist.

## CONSTITUTIONAL SYMPTOMS.

The symptoms of inflammation of the breasts are shivering, pain in the head, loss of appetite, constipation, high-coloured urine, and quick pulse.

The local symptoms are swelling, redness, and pain in the breasts. If the inflammation be allowed to continue, a deposit of sero-purulent fluid will occur in the cellular structure, and by its constant pressure upon the adjacent tissue, becomes absorbed, and an abscess is formed, which sooner or later opens and discharges.

## CAUSES.

The causes of inflammation of the breasts are various, such as cold during lactation or nursing, accumulation of milk in the breasts, injuries to them, diseases of the uterus, serofulous diathesis, &c., &c.

## TREATMENT.

The first thing to be attended to in the treatment of inflammation of the breasts, is to subdue local inflammation, and to remove constitutional symptoms. To do this, make the following local application. Take one ounce of arnica flowers, one half ounce of lobelia leaves, and two ounces of hops. Make a strong decoction, and apply cloths wrung from it hot as the patient can bear. Repeat this operation

every fifteen or twenty minutes until the swelling disappears. At the same time add ten drops of aconite to one half tumbler of water, and give the patient one teaspoonful every half hour, to keep the skin moist. If there is constipation, from one half to one grain of podophyllin, and one drachm of cream of tartar, may be given to open the bowels. If there be debility, or if the patient be of a scrofulous diathesis, the cathartic should be followed by quinine and precip. carb. of iron, and general tonics, such as chamomile, Indian hemp, pipsissewa, and precipitate carb. of iron, made into bitters by adding wine, or one half wine-glassful of Beach's wine bitters, may be given three times a day. If, in spite of all efforts, suppuration should take place, the breast should be opened, and the following poultice applied. Take pulverized slippery elm, pulverized hemlock bark, and pulverized arnica flowers, equal parts, put them in warm soda water, and apply to the breast warm, and change as occasion requires.

If inflammation of the breast occur after child-birth, the following lotion is almost a specific.

R. Camphor gum,.....	℥ss.
Table salt,.....	℥j.
Good whisky,.....	Oj.

Beef's gall, one tea spoonful; mix, and apply to the breast as soon as the swelling and pain commence.

### SORE NIPPLES.

One of the most troublesome and common difficulties connected with the breast after child-birth, is soreness of the nipples.

#### CAUSE.

The most common cause of this difficulty is a want of cleanliness on the part of the mother and child. The child is frequently applied to the breast before its mouth is thoroughly cleansed, and after nursing, the milk is too often

allowed to coagulate and sour upon the nipple, thus proving a source of great irritation.

## TREATMENT.

The treatment of sore nipples consists of washing with warm soap and water, after each nursing of the child, and sprinkling the nipple with superfine flower of hemlock bark.

The child's mouth should be washed before applying it to the breast.

If this treatment does not effect a cure, the following ointment should be used.

R. Balsam of fir, ..... ʒj.  
White wax, ..... ʒij.

Melt the wax and fir together, then add ten grains of equal parts of tanuin and bayberry. Apply this ointment to the nipple as often as necessary, and wash previously to each application. In the absence of this ointment, the nipple may be bathed in an infusion of sumach and hemlock bark. Cover the nipple with folds of linen during the intervals of nursing. A wash of borax and sage has also been used for sore nipples to good advantage.

## CAKED BREASTS.

In some cases where the lacteals or milk vessels are weak, or from other cause diseased, the milk accumulates in them, and produces what is known as milk cakes. When in addition to this, the patient takes cold, this congestion of the milk vessels produces, or is connected with serious constitutional disturbances, such as chills, fever, sweats, loss of appetite, &c.

## TREATMENT.

Make two ounces of thick plaster of bees-wax and lard, adding ten grains of gelsemin.

Apply this plaster warm three or four times a day. If this should not give relief in a few days, the following liniment may be used.

R. Oil origanum,.....	3j.
Oil hemlock,.....	3ij.
Alcohol,.....	3ij.

Mix, and apply before applying the plaster. The stomach and bowels should be regulated, and the patient avoid exposure.

## DERMATOZOA.

The skin may be attacked by certain animal parasites. Of these the pediculi or lice are too well known to need description. But we here allude to the *Acarus Scabiei* and *Entozoon folliculorum*.

Fig. 117.

Fig. 118.

Fig. 119.

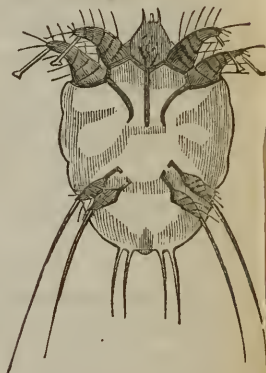
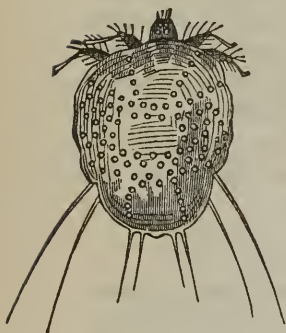


Fig. 117, Dorsal Surface of female *Acarus Scabiei*. Fig. 118, side view of the same. Fig. 119, Abdominal view of the male *Acarus Scabiei* magnified 100 diameters.

### ACARUS SCABIEI, OR ITCH WORM.

This insect has been proved by the researches of M. Bourguignon to be the undoubted cause of itch. The male is about one third smaller than the female.

He has suckers on two of his hind feet, and possesses on the abdominal surface genital organs, all of which charac-

ters are absent in the female. She, on the other hand, in addition to her size and the negative marks alluded to, is characterized by three kinds of horny spines which are

Fig. 120.



Fig. 120.—Hair and its follicle, in which may be seen the animalcules descending towards the roots of the hair and cul-de-sac of the follicles, magnified 100 diameters.

scattered over the back. The suckers or ambulacria are organs of locomotion; the mandibles enable it to cut the epidermis, and extract fluid from the tissues, which passes through a delicate œsophagus, the internal termination of which is unknown, the body of the animal being apparently filled with an unorganized molecular pulp. A short deli-

Fig. 121.

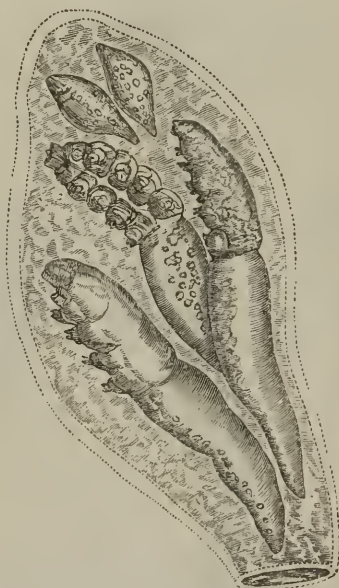


Fig. 121.—Cul-de-sac of a sebaceous follicle in different positions, and two eggs, magnified 350 diameters.

cate tube may also sometimes be observed at the anus—a supposed rectum.—No respiratory apparatus can be discovered, although the creatures may be seen to swallow minute bubbles of air, which pass down the œsophagus, and, like the nutritive juices, diffuse themselves through the in-



terior. At all events animal juices and air are both necessary to the life of the *Acarus*.

The disease called Scabies, or Itch, has been conclusively shown by M. Bourguignon to be entirely owing to the presence of the insect, and to be communicated from one person to another eight times out of ten by their sleeping together.

The female seldom quits her burrow but at night, and if impregnated, not even then, unless disturbed mechanically, as by scratching. Once in motion she crawls over the surface with great rapidity, and readily passes from one person to another where the skins are in contact. Communication is not readily occasioned by holding the hands of those affected, or by coming in contact with them during the day. The disease cannot be communicated by inoculating with the serum of the vesicles, by the pus of the pustules, or by any principle contained in the dead body of the insect itself; neither can the *Acarus* of one species of animal, as of the horse or sheep, inhabit the body of a different one.

Still the disease is not purely local, inasmuch as papular, vesicular, or pustular eruptions often occur in parts which the *Acarus* had not infested, so that they seem to originate from some cause independently of its mere presence.

The *Acarus* has a predilection for youth and a tender skin, and has a hatred of hair bulbs;—consequently it frequents young persons more commonly than old ones, and also in children it occurs indiscriminately all over the body, while in adults it is most often found between the fingers and toes, inside of the thighs and genital organs. Seventy times out of a hundred Scabies is confined to the hands, and in the other thirty occurs also on the trunk and genitals. The only proof of the existence of itch is the presence of the *Acarus*, and this is easily to be detected by a microscope adapted for the purpose by M. Bourguignon. It consists of a body, with eye piece and lenses mag-

nifying seventy diameters linear, with a condensing lens, the whole placed on a movable arm, with several joints attached to a firm stand. With this instrument the entire surface of the body may be explored, and the movements and doings of the insects observed with the utmost facility.

The associated papules, vesicles, and pustules are, in the opinion of M. Bourguignon, in no way diagnostic. M. Biett made a series of experiments at the Hospital of St. Louis, to determine what substance would cure itch in the shortest possible time.

He employed forty different applications and modes of treatment.

The result was that friction with the following ointment occasioned recovery on the average in the smallest number of days. Take of sublimed sulphur, two parts; of subcarbonate of potash, one part; and of lard, eight parts.

M. Albin Grass endeavoured to ascertain what substances would most quickly destroy the *Acarus* just removed from its burrow. It survived three hours in water; two in olive oil; one in a solution of acetate of lead; four-fifths of an hour in warm water; twenty-one minutes in vinegar and an alkaline solution; twelve minutes in a solution of sulphuret of potash; nine minutes in turpentine; and from four to six minutes, in a solution of hydriodate of potash. It survived sixteen hours in the vapours of sulphur under a watch glass; and one hour in the flowers of sulphur. According to these researches, therefore, hydriodate of potash would be the best remedy. He removed three living insects from a patient who had taken three sulphur-baths; whereas, after a single application of Helmerich's ointment, that is, where sulphur and potash are combined, he frequently found them dead. M. Bourguignon, with his microscope, watched with great care the effect of the frictions made at St. Louis with the sulphur-alkaline ointment. After the first day, in which there had been two frictions and a sulphur-bath, the *Acari* were in no way disturbed. In two

days after four frictions they were still active, but burrowed deep in their grooves. In three days they still lived, but were unusually flat, but their eggs could be hatched by artificial heat, and produced larvæ possessing great activity. In four days the insects in the superficial parts were shrivelled up and dead, the deeper ones, though living, *tres malades*. Many of the eggs now aborted. In five days all the insects were dead, and in six even the eggs had lost their vitality. The eruptions, on the other hand, often remained stationary, and, not unfrequently, became worse from the irritation of the ointment and frictions, but after a time they disappear also. Hence it is common at St. Louis, after seven or eight days' friction, to send out the patients, though still covered with eruption, and in most cases they get well. About three in ten, however, return with the disease again established;—a circumstance that Mons. B. attributes to the fact, that the frictions which were applied to the superior and inferior extremities had not destroyed the insects which were present on the trunk.

M. Bourguignon, on considering the structure of these Acari, and the facility with which a poisonous fluid could penetrate their delicate integument, was led to make a series of observations to determine how long they would live after the application of various toxic solutions. He found those which possessed the most energetic action on these creatures, were solutions of the ioduret of potassium, and of the ioduret of sulphur, which killed them in eight minutes. A solution of the alcoholic extract of staphisagria was the next in virulence, destroying the animals in fifteen minutes. The hands of an itch patient were immersed in a solution of the two former, for two hours, so as strongly to impregnate and colour the integuments. On examining the insects immediately afterwards they were as lively as ever, but on the next day they were all dead, and the eggs destroyed. The epidermis was greatly shrivelled,

and in three days complete desquamation occurred, carrying with it Acari, grooves, and eggs, and leaving the cutis raw and tender. The action on the skin was evidently too strong. A bath of a solution of the alcoholic extract of staphisagria was then made, and immediately after a two hours' immersion of the hands all the insects were found dead, and, with one exception, the eggs destroyed. So far from irritating the integument, this application at once caused the irritation to cease, and produced such alleviating effects that M. B. proposes it as a local remedy for inflammation. The eruptions also appeared to be rapidly cured by it. After various experiments he adopted an ointment of the staphisagria as the most generally useful preparation, prepared as follows:—Recently ground staphisagria in powder, three hundred grains; boiling lard, five hundred grains. Digest for twenty-four hours at the temperature of one hundred degrees in a sand-bath, and strain. Four days of friction with this, instead of seven with sulphuro-alkaline ointment, not only destroys the insects and their eggs, but completely cures and prevents the integumentary irritation and eruptions.

#### ENTOZOON FOLLICULORUM.

This insect inhabits the sebaceous follicles of the skin, and is very common in the face, more especially when the seat of acne or small pimples. In the follicles of the nose they are present in the majority of living persons, and, according to Simon, are almost universal in dead bodies. He frequently found them living six days after the death of the individual in whom they were found. The animal measures from 1-135th of an inch to 1-64th of an inch in length, and from 1-155th of an inch to 1.555th of an inch in breadth. It is composed of a head, a thorax, and an abdomen.

The *head* represents in form a truncated cone, flattened from above downwards, and directed obliquely downwards from the anterior part of the trunk. The existence of an eye has not been determined. The head is furnished with

two maxillary palpi, which admit of extensive motion. The thorax is the broadest part of the animal, and is composed of four segments. In each of these, on each side, are two legs, eight in all. The abdomen varies in length, is annulated in structure, and admits of certain movements. Internally Dr. Erasmus Wilson has traced out an alimentary canal, and its termination in an anus, together with a brownish mass which he considers to be the liver. No sexual differences have been discovered in them, and they possess no respiratory organs.

The animal is easily found by compressing with two fingers the skin we wish to examine, until the sebaceous matter is squeezed out in the form of a little worm. This matter should be placed in a little drop of oil previously heated, then separated with needles and examined with a microscope magnifying two hundred and fifty diameters. Their movements are slow, whilst the conformation of their articulations only permits them to move forwards and backwards, like lobsters.—(*Gruby.*) They are nourished by the sebaceous secretions of the follicles.

They most commonly occupy the excretory ducts of the follicles, which are often dilated in the places where they are lodged. Their head is always directed towards the base of the gland. When there are many together, they are placed back to back, and their feet are applied against the walls of the duct. When very numerous they are compressed closely together, and are found deeper in the ducts. They rarely exist, however, at the base of the gland. In young persons they vary in number from two to four. In an aged individual they may be from ten to twenty. Though this entozoon may occasionally be associated with acne, it seldom gives rise to great inconvenience. According to Erasmus Wilson, the difficulty seems to be not to find these creatures, but to find an individual with the exception of newly-born children, in whom they do not exist.

## TREATMENT.

We have given the treatment of this disease in another portion of the book, which consists in the free use of sulphur-baths.

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## REPRODUCTION.

Reproduction comprises generation, or the formation of the germ, fecundation, conception, gestation, and parturition. Fecundation is the result of the peculiar influence of the semen over the matured ovum of the female. After coition the semen traverses the Fallopian tubes, reaches the ovum, and fecundation occurs in the outer third of the tube.

The Graafian vesicles are small cysts; shape, round; containing a fluid; size, varying from a pin's head, (as seen by the unassisted eye,) to a large pea, according to progress towards maturity; the largest are nearest the surface; number, 15 to 30 to naked eye. Negrier says, they are found quite early in life; in the old are not seen. Consists of two coats, intimately adherent; the outer adheres loosely to the stroma by soft cellular membrane, to which the vessels ramify; is called the "tunic of the ovisac;" the inner is vascular, is called the "ovisac;" within each vessel is a layer of granules covered by a tenacious fluid; is called *tunica granulosa*; within this layer is an albuminous fluid; in this layer, just where it is in contact with the peritoneum, is the *ovule*. The *ovule* is rounded and very minute, one-tenth of a line, consisting of a *vitelline membrane*, *yolk granules*, the *germinal vesicle*, and *germinative dot* or *spot*. The *vitelline membrane* is an elastic, thick, hyaline structure; it is filled by the vitellus, a granular, viscous mass. The *germinal vesicle*, discovered by Purkinje, is seen within the vitellus as a clear spot, one-sixtieth of a line in diameter. The *germinative dot*, discovered by Wagner, exists usually single, rarely double, within the germinal vesicle.



Mammalian ovule, first described by Von Baer, of Königsburg, in 1817. It appears as a dark sphere, the *vitellus* surrounded by a ring, the *vitelline membrane*.

Graafian vesicles rupture independently of coitus, and ova are discharged into the tube, as demonstrated in animals, and very recently by Letheby in two human females.

When successful coitus occurs, the germ is fecundated in the tube, and certain changes ensue; before its arrival in the uterus, a nidus is prepared for its reception and development.

In the uterus, at each menstrual period, the mucous membrane is hypertrophied and cast off; but on the occurrence of conception, the development is greatly exaggerated, the expulsion occurring subsequent to parturition. To this change the title *decidua* is applied.

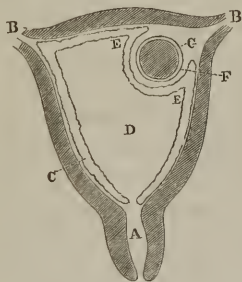


Fig. 122.—The decidua after the arrival of the ovum. C, the external or uterine decidua. E, E, the internal or reflected layer. D, the cavity of the decidua. F, the chorion. G, the amnion.

Membrana-Decidua, called also *caduca*, *anhistous membrane*, is independent of the presence of an ovum, as shown in extra-uterine pregnancy, though not invariably.

The glandular utriculares become elongated, enlarged, and contorted; their secretion increases; the vessels of the mucous membrane become larger and more numerous; a substance composed of nucleated cells, fills up the inter-



follicular spaces in which the blood vessels are contained. The effect of these changes is an increased thickness, softness, and vascularity of the mucous membrane, which itself forms the *membrana-decidua*.

The structure exists over the internal surface of the uterus, except the cavity of the cervix, but extends into the oviducts. At an early period of gestation, it is easily detached; as it becomes more vascular, hemorrhage occurs when it is separated. It is thickest during first two months. Its outer surface, when detached, is spongy and flocculent; its inner, smooth, with striæ and depressions which lead into canals.

The ovum enters the uterus, and becomes imbedded in the soft decidua; by a new action, excited by its presence at its place of contact, a prominent ring rises over and encloses it, constituting the "*decidua reflexa*," so called, to distinguish it from *decidua vera*. As the ovum grows, a new structure develops itself between the ovum and the uterine wall, called "*decidua serotina*." In young ova, examined in the uterus, both *decidua vera* and *reflexa* are found; but in aborted ova, this is not the case; a portion is retained in utero. As the ovum grows, both the *decidua vera* and *reflexa* are brought into contact, and at the third month the cavity between them is obliterated.

To return to the ovum. The ovarian ovule exists in the Graafian vesicle, having, in all mammalia, the following essential parts, viz.:—1st. The *vitelline sac* or *zona pellucida*, a structureless bag, which is seen in the fowl's egg, enclosing the yolk. 2d. Within this the *yolk*, consisting of fat globules and nucleated cells; also, 3d, The *germinal vesicle*. 4th. Within this vesicle, the *germinative dot*, which is a cell with a nucleus; in some ova several nucleated cells exist, as in those of fish.

Lining the internal membrane of the Graafian vesicle, is a layer of nucleated cells, forming a kind of tunic, called

the *membrana granulosa*; this surrounds the ovule. At one part the cells are more numerous than elsewhere, forming the *proligerous disc*.

About the time the ovum leaves the ovary, the germinal vesicles disappear, and also the germinal spot. The cells of the *membrana granulosa*, near the ovum, become club-shaped, and subsequently quite round. The yolk also contracts, and leaves a clear space between it and the *zona pellucida*. As the ovum approaches the middle of the oviduct, an albuminous substance forms on the exterior of the *zona pellucida*, into the chorion.

During its passage along the lower part of the tube, the "*cleaving of the yolk*" occurs, breaking into two parts, four, eight, sixteen, thirty-two, sixty-four, &c. Each segment contains a transparent vesicle. The cleaving ceases about the time of the ovum reaching the uterus, and it now resembles a granulated mass.

Soon each of these segments becomes surrounded with a membrane, and thus converted into a cell; these cells arrange themselves into a kind of secondary vesicle, the "*vesicula blastodermica* or *germinal membrane*"; this rapidly becomes thicker, and within its substance shortly appears the first trace of the embryo.

The time occupied in the transit of the ovum from ovary to uterus in the human female, is, probably, eight or ten days. Coitus, to be successful, must, *probably*, occur within this period after menstruation, or else a few days before a period.

#### CHANGES BY IMPREGNATION.

In the ovary and tubes, vascular turgescence; one or sometimes both tubes firmly embrace their respective ovary, and the corpus luteum remains.

## SIGNS OF PREGNANCY.

One of the first and surest signs of pregnancy is a cessation of the catamenia. This is not, however, an unerring sign, as it may cease from other causes. Nor is the presence of the menses a sure sign of non-pregnancy, as it is a well-known fact that some females menstruate during the early months of pregnancy, and that others never menstruate except during pregnancy. Hence any one of these signs alone may not be reliable. But when the following series of symptoms exist, we need not be mistaken in diagnosis. During the first and second months, there is tumefaction and tenderness of the breasts, unnatural flatness of the lower portions of the bowels, nausea, and sometimes vomiting in the morning, and suppression of the menses. By examination per vaginam, the uterus will be found slightly prolapsed, the os uteri closed, and the cervix directed towards the symphysis pubis. From the third to the eighth month, in addition to the above symptoms, the tumefaction of the breasts will be increased, the areola will be discoloured, and in many cases a secretion of the milk will take place. There will be movement of the fœtus, fœtal pulsation, and increase of the abdominal tumour.

## TREATMENT.

The only early symptom of pregnancy which requires treatment is the morning sickness. For this, either of the following remedies may be relied on:—Take from twenty to thirty drops of pepsine every morning before rising, or from three to fifteen grains of triturated seneecin once or twice a day. During the latter stages of pregnancy, if there be weakness, the patient should take one teaspoonful of the mother's cordial two or three times a day. If there be pain, with tendency to abort, one or two grains of triturated helonin, with two or three grains of triturated hyosiamin, should be taken at bed-time. The bowels should be kept open by mild laxatives, and violent exercise should be avoided.

## CHILD-BIRTH, OR PARTURITION.

If the fortieth week of pregnancy occur at the regular time of the catamenial flow, labour will commence; but if it do not correspond with that time, labour will be delayed until the next regular period of menstruation. In some cases, labour may be anticipated, and occur as soon as the thirty-eighth or thirty-ninth week.

## CAUSES OF PARTURITION.

The cause of the expulsion of the fœtus is the involuntary contraction of the uterus, aided by the abdominal muscles. To render the combined action of the two classes of muscles complete, the lungs, by a deep inspiration, are filled with air, which is prevented from escaping by contraction of the glottis. At the same time the ribs are fixed, and the diaphragm is in a rigid state. As soon as the abdominal muscles contract, the intestines are thrown up against the diaphragm, and the entire force of the contraction is made upon the gravid uterus, and its contents are expelled as soon as the os uteri becomes sufficiently dilated. The pain experienced by the patient is caused by the pressure which the uterine nerve receives during the contraction of the uterine fibres. Hence, as soon as the fibres relax, the pain ceases. As the uterine contraction is periodical, it follows that the pain is also intermittent. The first pains are mostly transitory, occurring at regular intervals, and are designed merely to dilate the os uteri, which is in a rigid state during the first stages of labour. The rapidity with which the mouth of the uterus dilates depends altogether upon the degree of muscular rigidity and the frequency and violence of the uterine pains. In primiparæ, or females who have never borne children, the dilatation is usually more tedious than in those who have previously borne children.

## SIGNS OF APPROACHING LABOUR.

A few days previously to labour, the uterus will be observed to settle in the pelvic cavity, the stomach will become relieved by the removal of the mechanical pressure, and the patient will feel every way much better;—to use her own words, she feels so much better that she expects to be sick in a few days. This immunity from nearly all the inconveniences of uterine gestation appears to be a wise provision on the part of the Creator to enable the recuperative powers of the system to prepare themselves to aid the patient to endure the labour and pain which is always, to a greater or less extent, the accompaniments of this event. As labour is about to commence, the patient has a frequent desire to evacuate the bladder and the rectum. At this time there is usually a discharge from the vagina of a mucous character, not unfrequently tinged with blood, and sometimes actual hemorrhage occurs. Accompanying this discharge are slight premonitory pains, usually very transitory and fugitive. As regular labour approaches, the pains increase in frequency, and instead of commencing in the lower portion of the abdomen, as they do during the dilatation of the os uteri, they commence in the back, and pass forward and downward, occurring at regular intervals, and are of a periodical character. It is under these pains that the os uteri becomes fully dilated, and if it be very rigid, the pains are tedious and extremely hard to bear.

The patient often is apprehensive of danger, and especially if she has not confidence in her medical attendant. Her nervous system becomes affected, thereby protracting the first stage of labour. When the os uteri is fully dilated, the first stage of labour is said to be over, and the second stage commences. In the early part of this stage the membrane which contains the liquor amnii ruptures, and the liquor escapes. At this time the labour becomes

more severe. The abdominal muscles contributing much to the expulsion of the fœtus, and being under the influence of the will, the patient and attendants often think that by a bearing-down effort of the patient the fœtus will be more readily expelled. This is true, provided the mouth of the uterus is thoroughly dilated—otherwise the effect of abdominal pressure might be to rupture the uterus and produce serious consequences. If the mouth of the uterus be well dilated, the patient should be instructed to hold her breath as long as convenient, to assist in fixing the abdominal muscles, thereby aiding the expulsion of the fœtus. At the same time she may very much facilitate the effort by placing her feet against some hard and firm substance, and pulling with the hands at some permanent object. Much injury may be done at this stage of labour by too violent extension. Therefore, extreme caution should be observed in every effort made by the patient to aid nature in effecting delivery. In some cases, gentle pressure upon the abdomen will assist in fixing the abdominal muscles so as to aid labour. The patient should also be instructed to bear the pains with calmness, avoiding nervous or mental agitation, keeping as quiet as possible, although there is no objection to her standing upon her feet, walking about the room, or using the vessel to evacuate the bowels and bladder, until after the head of the child passes the pelvis, and presses against the perineum and vulva, at which time the patient should remain quiet, although the pressure against the bladder and rectum frequently produces an evacuation of these organs. During the passage of the fœtus through the os uteri and vagina to the inferior strait of the pelvis, the pains are most excruciating, and the patient often gives vent to her feelings in the most pitiful groans and cries. As soon as the head reaches the lower strait of the pelvis, and pressure is made upon the perineum, the agony and anxiety of the patient are extreme.



The attendant should place a napkin firmly against the perineum, making pressure whenever the pains occur, so as to prevent its rupturing. Also, direct the head of the fœtus through the vulva with the other hand. As soon as the head emerges from the vulva there will be a short repose, during which the attendant should carefully examine the neck of the child, and ascertain whether the umbilicus is around it, and if so, remove it. The child's head should also be supported—but in no case in natural labour should traction be made until a pain appears. Then a gentle rotary traction may be made on the child's head, to assist the uterus in the expulsion of the body. During the progress of the first stage of labour, the attendant will have occasion to make examinations to ascertain the position of the child, the character of the presentation, the advancement of labour, &c., which should be done by feeling, as gently as possible, with the finger covered with oil or glycerine, for the fontanelle, as described under the head of different presentations. In no case, however, is it justifiable, on the part of the attendant, to repeat these examinations oftener than is absolutely necessary to ascertain the position of the fœtus, as no good, but much injury, may result from the constant manipulation sometimes practised by obstetricians. The position of the patient during labour should be governed by circumstances. Some patients find the easiest position in bed, reclining upon the left side—others can only endure the pains by being on their knees; others by walking about the room until the pains return, and then kneeling upon a cushioned chair until they pass off, resuming the exercises until another return. In each of these positions I have seen patients complete their labours with equal facility—hence the attendant should be governed by circumstances in respect to the position of the patient.



With reference to the duration of labour, the attendant should be careful not to make the time too short, as thereby the patient and her friends will be likely to apprehend that something is wrong, and their confidence in him will be lost.

The following facts will be a guide to the length of time that must elapse from the commencement of labour until delivery is effected:

Where the pelvis is large, labour is more rapid than if it be small: and the first labour is usually more protracted than subsequent ones. The more relaxed the soft parts, the more rapid the labour. Also where the mouth of the uterus is soft and easily dilated, labour usually progresses more rapidly than where it is thin and tense. If the pains be regular and at short intervals, with a well dilated vagina, labour will usually be short: on the other hand, where the os is firm, the vagina unyielding, and the pains irregular, the labour will be more protracted and tedious. The different presentations of the child's head to the pelvis also have much to do with the period of labour. These are the cephalic and pelvic presentations. The cephalic positions include the presentation of the face and vertex and the shoulder, while the pelvic includes the knees, feet and breech. When the vertex or head is presented, the labour is said to be natural, and all other presentations are said to be abnormal.

The first three positions of the vertex or head are represented by the following Figures:

Fig. 123 represents the first position.



Fig. 123.

#### POSITION OF THE HEAD.

The head presentation is characterized by the following six positions:

1st. Where the posterior fontanelle points to the left acetabulum of the mother. The posterior fontanelle is that part where the two sides, or parietes, and back or occipital bones unite just back of the crown of the head, and may be recognised by the touch, the bones not being quite united, and the corners of the bones not being easily felt.

Fig. 124 represents the second position.

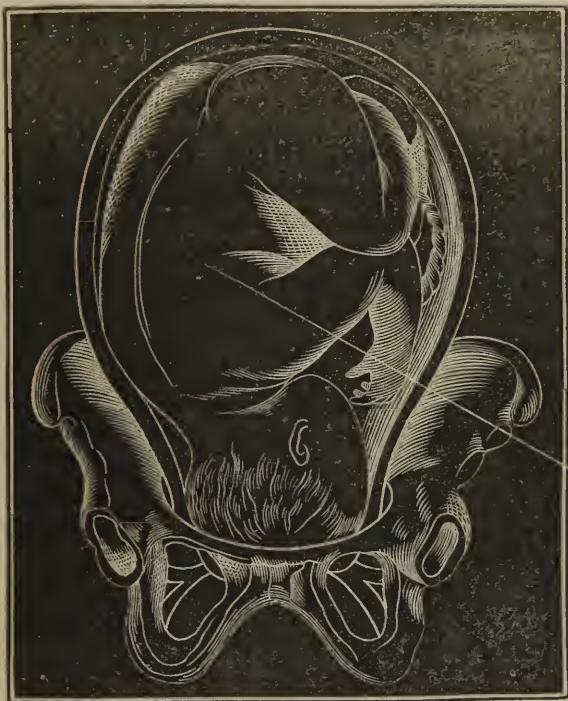


Fig. 124.

The acetabulum is the socket in which the head of the thigh bone plays. The 2d position, is where the posterior fontanelle looks towards the right acetabulum. The 3d is where the posterior fontanelle looks to the symphysis pubis. The 4th is where the anterior fontanelle presents to the left acetabulum. The 5th is where the anterior fontanelle looks towards the right acetabulum. The 6th is where the anterior fontanelle will be found to the symphysis pubis. The anterior fontanelle is that place in the an-

Fig. 125 represents the third position.

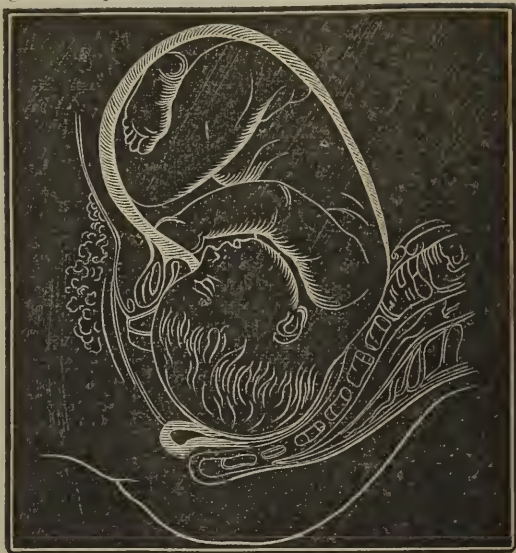


Fig. 125.

terior of the head where the frontal and parietal bones unite, and is known as the open place in the child's head.

#### THE DIAGNOSIS OF HEAD PRESENTATIONS.

The diagnosis is usually easy, especially after labour commences. By examination per vaginam, a round, hard and unceasing body will be felt; and, if pressed backwards, a large groove will be felt traversing the head, nearly from one end to the other. This is the sagittal suture. At one end of this suture is the posterior fontanelle, and at the other is the anterior fontanelle, which may be distinguished by the posterior being three-cornered and the anterior nearly square. These fontanelles, as I have already remarked, are sure to indicate the position of the child's head during the second stage of labour. The fifth position, although more tedious than the first, is by no means an uncommon

Fig 126 represents the sixth position.



Fig. 126.

one. The sixth position is one of the most difficult ones, as will be noticed, from the fact that the largest diameter of the child's head presents itself to the smallest diameter of the pelvis.

In this presentation, an early attempt should be made to reduce the position to one of the easier ones. If this be not accomplished, the use of the instruments may be required.



## THE DUTIES OF THE ACCOUCHEUR.

Having described the more essential points of what is termed natural labour, before giving a description of difficult parturition, I would offer a few remarks upon the duty of the attendant. When a physician is called to a case of labour, he should obey the summons as soon as possible. On his arrival, he should not enter the room until he has been announced. In the presence of the patient he should be modest and gentle, but should make such inquiries relative to the condition of the bowels, bladder, labour, &c., as will enable him to obtain all the requisite information respecting the condition of the patient. If the bowels be costive, they should be evacuated by means of a warm water injection. If necessary, the bladder should be evacuated by means of a catheter. If a vaginal examination should be necessary, the fact should be made known to a third person, who will inform the patient. The hand should be softened by warm water and oiled with sweet oil, and the examination should never be carried farther than is absolutely necessary to obtain proper information as to the nature of the presentation. If every thing be found as it should be, and the pains are regular, the pain should be allowed to progress without interruption, save an occasional examination to ascertain when the labour will be complete. On the contrary, if the pains be tedious and the os be rigid, from three to ten drops of the tincture of gelsemin should be given in connexion with five or ten grains of the triturated caulophyllin every half hour, until the pains are regulated and the rigidity of the os overcome. If these remedies do not regulate the pains, the feet should be placed in warm water and the patient allowed to drink a strong infusion of cotton root. Or, in the absence of that, a few doses of senecin and quinine may be given.

R. Senecin,..... gr. x.  
 Sulph. quinine,..... gr. v.  
 Sacch. alba,..... gr. xx.

Mix: divide into ten powders, and give one every fifteen minutes until the pains become regular. If hemorrhage should occur, from five to ten drops of the oil of erigeron every ten or fifteen minutes will usually be sufficient to check it. If not, five or ten grains of capsicum given in connexion with it, will control it. If the warm water injection should not move the bowels, a teaspoonful of fluid extract of anti-bilious physic may be given. When the child is born, it should be carefully examined to see if the bones are broken, or if any thing be wrong. During the entire course, the attendant should be calm and courteous, and do all in his power to contribute to the wants of the patient.

#### TYING THE CORD.

As soon as the child is delivered, a ligature should be placed around the cord, about one inch above the navel, sufficiently tight to prevent circulation in the cord, which may be known by its ceasing to pulsate. A second ligature should be placed about one inch above the first, and as soon as the pulsation in the cord ceases, it may be divided with a sharp pair of scissors, and the child given over to an attendant.

#### DELIVERY OF THE PLACENTA.

After the delivery of the foetus, the pains usually cease for ten or fifteen minutes, and then returning, are followed by an expulsion of the secundines. To facilitate the expulsion of the placenta, the attendant should make gentle friction with the hand over the abdomen, at the same time making slight traction upon the cord. There should be no pulling upon the cord, however, as it might cause inversion of the uterus, or the uterus might be dragged into the lower portion of the pelvic cavity. The former would be fatal to life, and the latter to health. If the placenta be not immediately expelled, and the pains do not return, let the patient rest for a few hours. The practice of forcing it away, is a pernicious one, as no harm can arise by allowing it to remain



for a few hours. In cases where the placenta has been attached to the uterus, I have allowed it to remain two, and in one case four days, without any mischievous result. On the contrary, it became detached, and was expelled without artificial means. Should the pains not return, however, and it be thought advisable to resort to means to expel the placenta, it can easily be accomplished by applying hot packs to the breast, and giving an infusion of blue cohosh or a few doses of caulophyllin, repeated at intervals of ten or fifteen minutes, aided by friction over the abdomen. If the placenta should be attached, the hand may be introduced into the vagina, and by introducing one finger into the uterus, cause it to relinquish its adhesive attachments. The expulsion may be assisted by gently pulling upon the cord, at the same time moving it to the right and left, and up and down in the vagina. After the placenta is expelled, several oiled napkins should be folded and applied to the vulva. The thighs should be brought into proximity, and an abdominal bandage of some ten or twelve inches in width, fastened tightly around the body, the wet clothing removed, and the patient placed comfortably in bed.

*After Pains.*—When after pains occur, small doses of hyoseyamin and gelsemin will soon relieve them. But, as these pains are for the purpose of expelling from the uterus effete matter, which, if allowed to remain, would be likely to produce puerperal fever, it is not best to interrupt them unless they prove too exhausting to the patient.

*Lochia.*—The lochia is a discharge from the uterus after delivery, and is caused by the escape of bloody serum from the partially open mouths of the uterine blood vessels. It usually continues from five to ten days.

*Treatment.*—Where the lochia is in excess and produces debility, a few doses of the oil of crigeron may be used in

connexion with hamamelin, bebeerine and precip. carb. of iron.

R. Hamamelin.....	grs. vj.
Bebeerine .....	grs. x.
Precip. Carb. of Iron.....	grs. x.
Sacch. Alba.....	grs. xxx.

Triturate; mix, divide into ten powders, and give one every three hours.

If the lochia be suppressed or scanty, a free purge of podophyllin and cream of tartar should be given, followed by iron and quinine, or by senecin and quinine. If this should not produce a return of the lochia, a warm mush-poultice should be applied to the breasts, a hot pack to the bowels, and a strong infusion of the cotton-root, given in connexion with the quinine and senecin. The diet, during the first fifteen or twenty days, should be nutritious and easy of digestion, and the patient should avoid violent exercise and exposure to inclement weather.

## MANAGEMENT OF THE CHILD.

Previously to washing the child, it should be anointed with lard, or soft oil. After washing with soap and water, the dressing of the navel should be attended to. The attached portion of the umbilical cord should be passed through a hole cut in the centre of several folds of linen, which should envelop the cord in such a manner as to prevent its coming in contact with the bowels. An abdominal bandage should be applied, but not so tightly as to prevent free circulation; and the child should be dressed in warm flannels. The child's mouth should be washed with cold water, and applied to the mother's breast,—as the first secretion of the breast will move its bowels. If it be necessary to give the child nourishment before the secretion of milk occurs in the breast, it should be fed with milk and water sweetened.

## PRESENTATIONS OF THE FACE.

The face presentations may be divided into four positions: 1st. Where the chin points to the right side, and the back of the child to the left side of the mother. This position may be ascertained after the water breaks, by feeling for the coronal suture, the orbital process of the eyes, the nose, mouth, chin, and, sometimes, the ears. The great utility of a correct diagnosis in these cases, is to ascertain the position of the feet—a matter of prime importance when it becomes necessary to turn the child. The 2d face presentation is, where the face presents to the left side. The 3d, is where the face presents to the sacrum. The 4th, the chin presents to the pubis. In all cases of face presentation, the natural tendency of labour is to rotate the head towards the symphysis pubis. When nature fails to do this, art should render all the assistance in its power. When the uterus is well relaxed, the hand may be introduced, and the vertex pressed downwards, and the face pressed gradually backwards and forwards, thus reducing the face presentation to a natural head presentation. This expedient, however, should be resorted to with great precaution, and not until nature has entirely failed to accomplish her purpose.

In these cases labour becomes very much protracted, and instruments must be resorted to,—but not until every effort has been made, on the part of the attendant, to effect a natural delivery. The system should be well supported with tonics,—as caulophyllin, bebeerine, hot ginger tea, warm sitz-baths, and an anti-spasmodic injection.

## PRETERNATURAL PRESENTATION.

## BREECH, FEET, AND KNEES PRESENTATION.

These forms of presentation are next in frequency to that of the vertex. In nearly all of these cases, nature is able to accomplish the labour without interference.

*Diagnosis of Breech Presentation.*—When the finger is introduced into the os uteri, it will come in contact with a soft, round tumour, on the side of which will be felt one of the trochanters. If the fingers be passed between these prominences on the upper portion of the thigh-bone, the anus and organ of generation will be felt. When the feet present, there is no difficulty in detecting them; but when the knees present themselves, all the different points of the head should be studied by the sense of touch. The breech presentations may assume four positions:—1st, the right sacro-iliac, (fig. 127;) 2d, the left sacro-iliac; 3d, the sacro-



FIG. 127.

pubic, (fig. 128; the spine is behind the symphysis pubis, and the belly towards the sacrum;) 4th, the sacro-sacral. The great importance of these positions is to enable us to study the positions of the head as it enters the pelvis, as in all cases where the greater diameter of the head comes in contact with the lesser diameter of the pelvis, very great difficulty may be expected to exist. It is in these cases that instrumental interference so frequently becomes ne-

cessary. The feet presentation may also occur in four different ways, possessing many practical points of interest, tending the same as breech presentations to indicate the degree of the severity of labour.

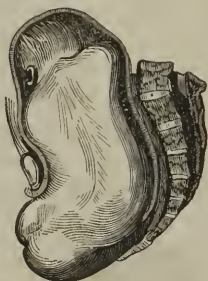


FIG. 128.

### COMPOUND PRESENTATIONS.

A compound presentation is where one of the extremities presents, in connexion with the head. Very fortunately, these presentations occur where the pelvis is large,—hence the delivery may be effected without the interference of instruments. In these cases the arm or foot should be pushed back into the uterus, in the absence of pain. In some instances, to effect this operation, it will be necessary to introduce the hand into the vagina, and, in some cases, into the uterus, returning the limb to its original position, and causing it to remain until the head is so far advanced as to prevent its return. But in cases where the limb is so far advanced, and the condition of the fœtus is such as to preclude the possibility of returning, the attendant should wait until he is satisfied that nature will not accomplish her purposes, and then resort to medical or mechanical interference as he deems expedient.

These means, consisting in the use of ether and craniotomy, or of the forceps, all of which will be described under the head of Instrumental Labour.

## SHOULDER AND ARM PRESENTATIONS.

Diagnosis of shoulder presentation, before rupture of the membrane, is exceedingly difficult. But afterwards it may be determined by the finger coming in contact when introduced into the vagina with a tumour much smaller than the head—and instead of the fontanelles, the acromial process will be felt, and by proper care the finger may be carried into the axillary and down upon the ribs. The shoulder presentation may be distinguished from that of the elbow by the olecranon process, and the two condyles of the elbow.

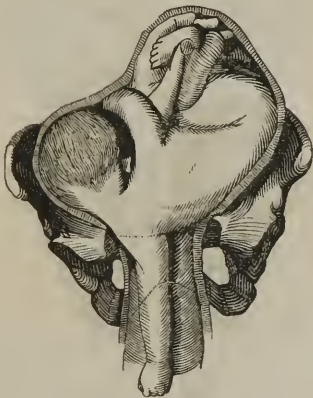


FIG. 129.

## TREATMENT FOR SHOULDER PRESENTATION.

The rectum should be evacuated by warm water injections, and the bladder, if necessary, by a catheter. Much care should be taken not to rupture the membranes. When the os uteri is dilated to the size of a half dollar, and the vagina and soft parts become yielding, the patient should be placed upon her back across the bed, with her hips slightly elevated, and her feet should be supported by two assistants. The attendant's arm and hand should be well



oiled, and he should take his seat between the patient's limbs. During a pain the hand should be gradually introduced into the vagina, and afterwards, in the absence of pain, into the uterine cavity. If introducing the hand into the uterine cavity should produce uterine contraction, the hand should be opened and made to cover the body of the child. The attendant should now rupture the membrane, and pass his hand over the umbilicus, in the neighbourhood of which a foot will be found. If pain should come on during this manipulation, the hand should be opened and allowed to rest upon the child; after which the foot should be grasped between two fingers, and search made for the other foot. (Figs. 130 and 131.) If the other foot be found, it should

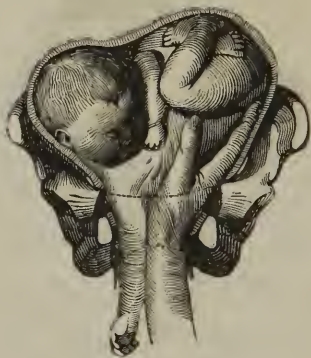


FIG. 130.

be grasped; if not, gentle traction should be made upon the one already grasped, at the same time making gentle pressure upon the abdomen, until the feet are brought into the vagina. Should the pains be severe, a few drops of laudanum, or a dose of morphine should be given to arrest them. After the operation of turning is completed, the hand should be withdrawn, and labour allowed to pursue its natural course.

When the *liquor amnii* has been discharged, and there



are violent pains, with a rigid uterus, no attempt should be made to introduce the hand, but the pain should be arrested by laudanum, the uterus dilated by the use of gelsemin, or lobelia injections, before turning is attempted. If, however, the uterine contraction should appear permanent, the attempt at turning abortive, the fœtus should be removed by exvisceration.



FIG. 131.

## PROLAPSUS OF THE UMBILICAL CORD.

When the cord is prolapsed, or appears before the presentation of the fœtus, it should be carried back into the vagina, and, if practicable, into the uterus. If not, it should be so adjusted in the pelvic cavity as to prevent the pressure of the fœtus upon it, thereby stopping circulation and causing the death of the child.

## INSTRUMENTAL LABOUR.

### APPLICATION OF THE FORCEPS.

The object in applying the forceps is, first, to assist the uterus in the expulsion of the child; and secondly, to hasten delivery where there is threatened danger to the mother or

child, as in the case of active hemorrhage or convulsions; in the third place, to assist where there is malformation of the fœtus, deformities of the pelvis—in short, wherever there is any obstruction to the expulsion of the fœtus by the efforts of nature.

The forceps should not be used where the os uteri and surrounding soft parts remain in a rigid state, or where the cord is short, or where it is twisted around the neck. As a



FIG. 132.

general rule, the forceps should not be used when the head has not escaped from the uterus.

In applying the forceps the following rules should be observed:—

“1st. The patient should be placed upon her back, exactly in the position recommended for turning.

“2d. The bladder and rectum should be emptied of their contents; the first by the catheter, if necessary, the second by means of an enema.

“3d. Before using the instrument it will be proper to

apprize the patient and her friends of the nature of the operation, of its probable success, and by showing her the instruments prove to her that they are not calculated, when properly used, to injure either her or the child.

"4th. Examine the condition of the soft parts, which should be dilated or dilatable. At the same time the exact position of the presenting part should be ascertained, if possible.

"5th. The instruments should be warmed to the temperature of the patient. They should also be well greased.

"6th. The forceps may be applied to the head, where either the vertex or face presents, or where it remains in the pelvis after the body is expelled. (Fig. 132.) By some it has been recommended to apply them over the iliac bones in case of breech presentations; but this is a doubtful practice, since the form of the part and the delicacy of these bones so early in life would hardly afford sufficient grasp for the purpose of extraction.

"7th. The concave surface of the blade of the forceps should be applied, wherever it is practicable, to the sides of the head in such a way as to grasp it in a line nearly parallel with the occipito-mental diameter. This is not always practicable, for in some cases, as we shall see hereafter, we will be obliged to apply the forceps, so that the forehead and occiput shall be the points compressed.

"8th. The forceps should always be applied so as to bring, at the termination of delivery, the concave edge under the symphysis pubis.

"9th. The posterior branch is generally the one to be first introduced.

"10th. The male branch or blade is to be held in the left hand, and is always to be applied to the left side of the pelvis. The reverse is true in regard to the female blade. The introduction of the blades should be effected during the absence of uterine pains.

"11th. The hand which is free to be used as the director of the blade which is being introduced. (Fig.133.) When the presenting part is low down, the introduction of one or two fingers only will be required, care being taken to insinuate them between the head and circumference of the os uteri, so as to prevent the latter from being grasped under

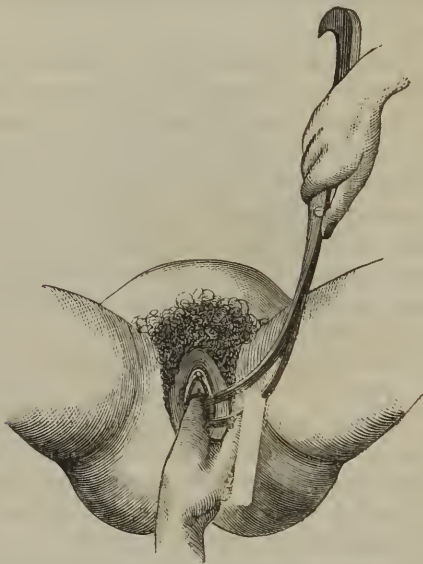


Fig. 133.

the blade of the forceps. When the presenting part is very elevated, it will be necessary to introduce the whole hand into the vagina, for the purpose of giving the proper direction to the blade of the instrument.

"12th. The blades should be introduced into the posterior part of the pelvis, when they may by a spiral movement be gradually drawn round so as to clasp the side of the head.

"13th. No force should be used in pushing the blade up to the proper point; if, as sometimes occurs, the soft parts of the mother, or the scalp or ear of the child, should prevent the proper application of the blades, the difficulty must be overcome by gentle manipulation, and not by force.

"14th. If when applied, the forceps should not lock easily, they should be withdrawn and reapplied.

"15th. Slight compression must be used, and traction should be made during the existence of uterine pain. The handles need not be tied, and the compression should be relieved between each tractive effort. (Fig. 134.)

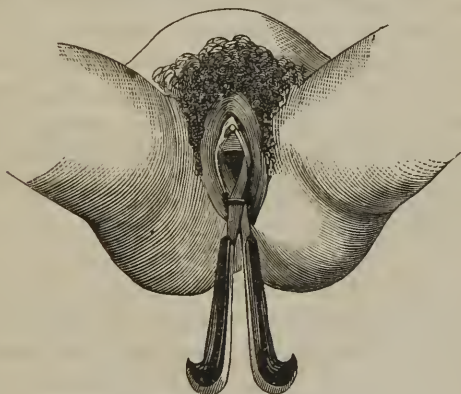


Fig. 134.

"16th. Before using traction, we should be sure that no portion of the patient is within the grasp of the forceps. If any portion of the vagina, vulva or uterus be included, the least compression will produce violent pain, and the cries of the patient will warn us of the accident.

"17th. Traction should always be made in the direction of the axis of that part of the curve (formed by the pelvis and perineum) at which the head is successively placed.

"18th. If pains continue until the head has nearly

passed the external part, our traction may be suspended, (though the forceps should not be removed,) so as to allow delivery to be accomplished by natural efforts if possible. In not removing the instruments, but merely suspending the traction, there will be no necessity for their re-application, if the natural expulsive efforts should cease before delivery has been effected.

“19th. The handle of the forceps must be seized with the right hand, and compressed sufficiently to give a firm hold upon the head, but where the pelvis is deformed a greater amount of compression will be required. The left hand must be applied over the joint or lock of the forceps. When all this has been arranged, traction may be commenced by gradually and to a moderate extent, swinging the handle from side to side, at the same time changing the direction of our efforts, as the head advances through the pelvis and over the perineum. As the head passes over the perineum, the latter should be carefully supported as in ordinary labours.”

### CRANIOTOMY.

This operation consists in opening the child's head and allowing the brain to escape, to admit of the delivery of the child. In no case is the attendant justifiable in resorting to this measure, unless the life of the mother or child must be sacrificed, in which case the mother should be saved. In order to perform this operation, the uterus should be much relaxed, and the perforator after being well oiled should be seized with the right hand and passed along the two fingers of the left, previously introduced to the point where the opening is to be made in the head.

The instrument is to be pushed into the head up to the shoulders, when they should be spread so as to make the opening as large as possible. When this is done, another incision should be made at right angles with the first, after

which the instrument should be passed into the brain, and so far as possible break up the cerebral mass. After this the perforator should be withdrawn and the crochet introduced into the cranium, and its sharp points hooked into the internal tablet of the cranial bones. At the same time two fingers of the left hand should be introduced and placed in such a position as to detect any slip of the crochet, thereby preventing injury to the soft parts. Gentle traction may then be made upon the crochet, and the mutilated head thus expelled. In some cases it becomes necessary to remove these bones by piecemeal, either with the crochet or with a pair of craniotomy forceps.

## PUERPERAL CONVULSIONS.

### SYMPTOMS.

The symptoms of puerperal convulsions very closely resemble epilepsy, and are usually, though not always, preceded by more or less pulmonary symptoms; such as pain in the head, slight vertigo, and load and pressure about the epigastrium, and in some cases nausea, and vomiting. Also numbness in the limbs and flashes of light before the eyes sometimes occur as premonitory symptoms of the above difficulty. In other cases no premonitory symptoms whatever occur, and the first thing observed is, that the patient's eyes are set and rolled upwards in the socket, with rigidity of the muscles, frothing at the mouth, protrusion of the tongue, &c. These symptoms frequently disappear in a few minutes, but sometimes they continue for an hour or more. When these convulsions appear, they are apt to be repeated until the cause is removed.

### CAUSES.

The causes of puerperal convulsions are various. But the more common cause is pressure of the fœtus on the sacral plexus nerves during parturition, or an injury inflicted



resulting in convulsions after child-birth. Another cause is congestion of the capillaries of the brain during labour. They may also be caused by irritation or pressure of the uterine or vaginal nerves, injuries and congestion of the spine, &c.

#### TREATMENT.

If convulsions be caused by pressure upon the sacral nerves, the head of the fœtus should be at once elevated. In the absence of proper instruments, the head of a large spoon may be used for this purpose, placing it under the child's head, and elevating it until it passes the lower strait of the pelvis. If this cannot be done, the child should be delivered at once by means of the forceps. At the same time, give the patient eight or ten of the intermittent drops, until the paroxysms are subdued. If the convulsions be caused by irritation of the vagina or uterine nerves, gelsemin and hyoscyamin are the remedies. If caused by congestion of the brain, the ligature should be applied to the arms and thighs; at the same time the tincture of veratrum viride should be given in five or ten drop doses every fifteen or twenty minutes until the paroxysms are relieved. The after treatment should consist in tonics, baths, &c.

#### FŒTAL CIRCULATION.

The peculiarities of the fœtal circulation consist in the ductus venosus, which connects between the umbilical vein and the vena cava in the foramen ovale, which exists in the interior auricular space, in the ductus arteriosus, which communicates between the pulmonary artery and the aorta, entering the aorta on its transverse arch, in the umbilical arteries, two in number, which arise from the hypogastric or internal iliac.

The blood passes into the right auricle, as in adults; then part of it passes through the right ventricle, pulmo-

nary artery, and ductus arteriosus, into the aorta. The other portion passes through the foramen ovale into the left auricle, and left ventricle, thence through the aorta and its left branches.

Immediately after birth and upon inspiration the blood rushes to the lungs, the foramen ovale closes by valvular development for that purpose. The ductus arteriosus is useless, and soon becomes obliterated. The umbilical arteries are also closed from the fourth to the seventh day.

#### DEATH OF FŒTUS.

Death of fœtus may be known by cessation of motion, flaccid and loose feel of the abdomen, cold and weight in the lower portion of the bowels, loss of appetite, and feelings of debility.

## PART IV.

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### MATERIA MEDICA AND PHARMACY.

By *Materia Medica* is understood that branch of medical science which treats of all medicines which are adapted to the removal of diseases in their natural state. They may be simple, or compound, organic, or inorganic. The former belong to the animal and vegetable kingdoms, and the latter to the mineral kingdom.

By *Pharmacy* is understood that department of medical science which relates to compounding, mixing, and preparing all medicines which differ from those found in their natural state. The following is Dr. Murray's arrangement of the *Materia Medica*.

1. *General Stimulants*.—These are diffusible, as narcotics and anti-spasmodics, and permanent, as tonics and astringents.

2. *Local Stimulants*.—These are emetics, cathartics, emmenagogues, diuretics, diaphoretics, expectorants, sialagogues, errhines and epispastics.

3. *Chemical*.—These are refrigerants, antacids, lithontriptics and escharotics.

4. *Mechanical Remedies*.—These are anthelmintics, demulcents, diluents and emollients.

The following is the arrangement of medicinal substances, according to their therapeutic properties, by Dr. James Johnstone:—

CLASS I. Medicines which act upon the alimentary canal.

CLASS II. Medicines which act upon the glandular system, and upon the secretory and excretory vessels.

CLASS III. Medicines which act upon the heart and arteries.

CLASS IV. Medicines which act upon the brain and nervous system.

CLASS V. Medicines which act upon the muscular fibre.

CLASS VI. Medicines which act upon the skin and external parts by application to the surface of the body.

CLASS I. Medicines which act upon the alimentary canal.

1. *Emetics*.—Medicines which evacuate the stomach by exciting vomiting.

2. *Cathartics*.—Medicines which expel the fæces by increasing the peristaltic motion of the intestines.

3. *Anthelmintics*.—Medicines which destroy intestinal worms by expelling them from the body.

4. *Antacids*.—Medicines which counteract acidity in the stomach.

5. *Demulcents*.—Medicines which protect and lubricate the coats of the alimentary canal.

6. *Antidotes*.—Medicines which neutralize poisons when received into the stomach.

CLASS II.—Medicines which act upon the glandular system, and upon the secretory and excretory vessels.

1. *Secretory Stimulants*.—Medicines which act upon the whole glandular system.

2. *Sialogogues*.—Medicines which increase the secretion of saliva.

3. *Expectorants*.—Medicines which promote the secretion of mucus or pus from the bronchial tubes.

4. *Errhines*.—Medicines which promote the secretion of mucus in the nostrils.

5. *Diaphoretics*.—Medicines which excite cutaneous exhalation.

6. *Diuretics*.—Medicines which increase the secretion of urine by exciting the action of the kidneys.

7. *Emmenagogues*.—Medicines which promote the menstrual discharge.

CLASS III.—Medicines which act upon the heart and arteries.

1. *Sedatives*.—Medicines which diminish the power and velocity of the circulation by their power on the heart and large arteries.

2. *Refrigerants*.—Medicines which diminish the heat of the body, by their action on the extreme vessels.

3. *Tonics*.—Medicines which invigorate the circulation, and thus relieve debility or atony.

4. *Arterial Stimulants*.—Medicines which excite the circulation.

CLASS IV. Medicines which act upon the brain and nervous system.

1. *Narcotics*.—Medicines, which by their operation on the brain and nerves, diminish sensibility and induce sleep.

2. *Antispasmodics*.—Medicines which by their operation on the nervous system, allay inordinate muscular action.

3. *Nervous Stimulants*.—Medicines which excite the brain and nervous system, and thereby increase their irritability and energy.

CLASS V. Medicines which act upon the muscular fibre.

1. *Astringents*.—Medicines which by inducing contraction of the muscular fibre, restrain inordinate evacuations and hemorrhages.

CLASS VI.—Medicines which act upon the skin and external parts, by application to the surface of the body.

1. *Epispastics*.—Medicines which excite external irritation.

2. *Emollients*.—Medicines which allay external irritation, by softening the skin.

CLASS VII. Concentrated eclectic remedies, which mostly act specifically upon the different organs and tissues of the

body, or as direct antidotes to the various morbid elements producing disease. Those remedies being most important, they will be first considered.

### CONCENTRATED ECLECTIC REMEDIES.

By concentrated Eclectic medicines, we understand those articles which have been manufactured by our pharmacutists and chemists, and are denominated essential tinctures, concentrated tinctures, active principles, proximate principles, &c., &c. These medicines are principally manufactured from our indigenous plants. It is not my purpose to give a detailed account of the various modes of manufacturing these articles, or to enter into a discussion of the importance of these modes, as this is the province of the pharmacist, and he will give you all the necessary instruction in this respect. The articles which I shall present to you, under the name of concentrated Eclectic remedies, will consist of solid and powdered extracts, powdered resinoids, crystallized alkaloids, oleo-resins, tinctures essential, concentrated, and saturated, and the proximate principle of the plant, which includes the resin, alkaloid, and neutral principle combined. These articles are manufactured by different pharmacutists, and each has its respective merits. In presenting these remedies to your consideration, I shall not adopt the old, stereotyped dogma of arranging them under the head of alteratives, emetics, diuretics, cathartics, antacids, anthelmintics, &c., &c., but shall describe their medical and toxical influence upon the various tissues and organs of the body, both in health and disease. It has long appeared to me that this method of studying the influence and medical virtue of medicines possesses superior advantages over the old system. According to the old plan of arranging the materials used in the treatment of disease, we find a very large number of them possessing vastly different properties, arranged under

some particular head or classification. Take the remedies usually denominated alteratives: how diversified are their real properties! The mercurials are the great, and in the eye of the *alterative* branch of the *profession*, the most potent of them all; while all the lesser remedies, the medical properties and curative powers of which they are ignorant, are auxiliaries. Writers on materia medica seem to think they have fully explained every important fact relating to the curative power of a remedy if they have arranged it under some specified caption, as alterative, cathartic, diaphoretic, &c.; and then they conclude their remarks by ascribing to the article the appellations of all these classifications of it, as emetic, cathartic, diaphoretic, diuretic, alterative, &c., &c. Thus, instead of studying the *modus operandi* of medicine, as it affects different tissues and organs of the body in health and disease, they have dealt in crude generalities, and so befogged the entire subject of therapeutics and materia medica, that the young practitioner will no sooner find himself at the bed-side of his patient, than he will discover that these vague and confused classifications of medicine do not enable him to apply any one of them to his special case with any degree of certainty. Hence he is left to chalk out his own course; and if, after a long experience, he hits upon the remedy to produce the proper change in the tissue diseased, the patient will recover, otherwise nature must remove the disease, and at the same time counter-influence the toxical impression of the drug. It is not my purpose, to discuss this subject, farther than to invite your attention to a few of the reasons why I shall not adopt this antique and most miserable classification of remedies. I will add, before dismissing this subject, that this arrangement of the materia medica is based principally upon the more powerful influences of the drug upon the human organism; and what renders it of less value to the profession is, these in-



fluences are mostly the poisonous, and not the medical effects.

You may inquire whether we have any data upon which we can base our observations relative to the special action of medicines upon special tissues. In answer to this inquiry I think I can safely reply that we have abundance of admitted facts of this character. Especially is this the case relative to the toxical impression of medicines. The alterations in the nervous and capillary structure of the cervical portion of the medulla spinalis, the effect of strychnine, the ruptured condition of the various muscular fibres of the uterus after full doses of ergot, the varicose condition of the hemorrhoidal veins, and irritation of the mucous membrane of the rectum after the use of aloes, the ophthalmoplegia and ptosis after the use of gelseminum, and urethritis after the use of cantharides, together with a large number of other admitted facts relative to the direct impression of medicines upon special tissues, most conclusively demonstrate that medicines do produce specific influence on special tissues of the body. This being the case, it only remains for us to study these influences, to learn the precise tissues or organs upon which each remedy manifests its power, together with the character of the impressions, whether they increase or diminish the vitality of the part, whether they produce atrophy or hypertrophy, consolidation or softening. These facts having been acquired, if we fully understand all the pathological conditions of these organs and tissues in disease and health, we can so apply remedies as to affect the tissues diseased, and correct such pathological conditions as constitute the basis of disordered action.

Before proceeding to the discussion of the medical virtues of these medicines, I wish to allude to some objections which I frequently hear urged by doctors against the use of these articles. They do not think them reliable; they are not prepared with a uniform strength; besides, they

have tried them, and they do not fulfil their expectations. There may be truth in all these objections, especially in the latter, and for the best reasons in the world—the remedies not being administered in proper quantity, nor for the proper disease. We have known persons to administer podophyllin as a substitute for calomel or blue mass, and nearly kill their patients with over-doses. The physician, not knowing the virtues of the medicine, how could he expect to cure his patient? Again, he claims the remedies are not skilfully prepared. In answer to this objection, let me inquire whether the ordinary physician, with his bowl of hot water and stew kettle, can surpass in pharmaceutical skill the learned chemist and pharmacist, with all his apparatus, in the extraction of the medical virtues of our indigenous remedies. But, says the objector, he is opposed to *concentrated* medicines. Does he mean by this that he will feed his patient on dry roots, barks, and weeds, or does he mean that he will attempt to obtain the virtues of his medicine in the form of teas and syrups, and thus in a crude way to do what the skilled pharmacist does with entire success? These objections against the use of concentrated Eclectic medicines are mostly based upon ignorance, and hardly merit the passing notice I have given them.

We will now proceed to consider the medical properties of the medicines.

1. *Aconitin*, the active principle of *Aconitum Napellus*. *Aconitum napellus*, though cultivated extensively in this country, is indigenous to *Europe*. *Aconitin* is prepared from the leaves and the root, and is composed of an alkaloid, a resinoid, and a neutral principle. These principles are supposed to be the active principle of the plant. Fifteen years ago I published an article upon the use of the tincture of aconite leaves in the treatment of fevers. It was not used by Eclectic physicians up to that time. Since

then, however, it has become a general remedy, and there is now no Eclectic who treats fevers without it. When I speak of fevers, I will tell you of its virtues. I have now to do with the active principle. I do not use aconitin in inflammatory fevers. I use the saturated tincture of *aconitum napellus*. Aconitum operates as an anæsthetic. It is a debilitating agent, and paralyzes nerve tissue. If you take a sixteenth portion of a grain, it will produce a tingling sensation through the nerves. If there be headache, which is dependent upon increased sensibility of the nervous tissue, it will disappear. A lady had facial neuralgia. She had been leeches and blistered, and had taken all sorts of mixtures. I gave the sixteenth portion of a grain of aconitin at night, when she went to bed. The neuralgia ceased; she had none during the night, nor was she troubled with it at any subsequent period. In this case the aconitin operated simply as an *anæsthetic*. I recently used this article in a very peculiar case. I had a patient, a young man who had spermatorrhœa; he was troubled with nocturnal emissions. You will find a great many of these cases in practice. The spermatorrhœa was very persistent; it was affecting his intellect; he had great prostration and debility of the sexual organs. I gave him five powders; each containing one sixteenth of a grain of aconitin. I wanted to try it in spermatorrhœa. This gentleman stated he never had anything to relieve him so quickly and so thoroughly as did the powders which I gave him. I have also used it in case of chordee, in gonorrhœa. It has operated admirably. I have also used it in several cases of delirium tremens; where that, in connexion with lobelin, soon put my patient into a quiet sleep. I also use it in a class of patients, where we wish to diminish sensibility of the part. I have used a solution of it as a wash to indolent ulcers with benefit. I have applied an ointment of it for herpes, and a great variety of other cutaneous affections of a painful character. It benumbs the part, and gives ease, without

producing constitutional disturbance or injury of any kind. There are several instances in which it may be used where morphia cannot be. All the preparations of opium produce active constipation of the bowels in nearly all cases where there is a debilitated state of the system. Aconitin does not do this; it rather increases the peristaltic action of the bowels. I have given it in irritability of the bladder, and sensibility of the vagina. I recently had a most remarkable case of prurigo of the vagina. This disease occurs in middle aged females, and there is an exudation which becomes exceedingly irritating to the part, together with laceration, irritation, subacute inflammation, and itching. Aconitin will almost invariably relieve the pain at once. It should be applied in the form of an ointment. I have also used this remedy in a large number of cases of neuralgia, with almost instant relief. In short, there is scarcely a painful condition of the body, dependent upon simple hyperæsthesia of the nervous system, in which I have not used aconitin with marked success. From these facts we conclude that the specific influence of aconitin is upon the gray nerve matter of the sensitive nerves. We infer this from the fact, that while it produces almost immediate anæsthesia of sensibility, it does not interfere with the nerves of motion; nor does it, in doses sufficiently large to arrest pain, produce any observable impression upon the action of the heart and arteries. From all the observations I have made in the use of this article, I believe it is destined to fill a most important vacancy in our materia medica. It appears to possess the power of so modifying the sensibility of a diseased tissue, as to prevent the suffering without interfering with the functions of other organs and tissues of the body.

From my brief remarks relative to the use of this agent, you will observe that the range of the application of aconitin is very great; that it may be used in all cases where there is hyperæsthesia, without interfering with other reme-

dies, or their curative influence. The dose of aconitin is from one twenty-fourth to one eighth of a grain, repeated at intervals of half hour or an hour, as the case requires. It should be thoroughly triturated in sugar, in the proportion of one grain of aconitin to ten of sugar. As an external remedy, it may be applied as follows:—Mix ten grains of aconitin with one dram of lard, and rub the painful parts with it four or five times a day.

#### AMPELOPSIN.

*Ampelopsin* is the active principle of *Ampelopsis Quinquefolia*. *Ampelopsin* is a remedy which appears to manifest its influence principally on the lymphatic tissues, or vessels. The lymphatics are a class of vessels, which by anatomists have been divided into external and internal. The external are situated in the subcutaneous cellular tissue, between the skin and the aponeurotic sheaths of the muscles, and accompanying the subcutaneous veins. The deep-seated layer of lymphatics is found chiefly in the interspaces, and along the course of the venal and arterial trunks. These vessels are exceedingly numerous, and converge from all portions of the body, and form large lymphatic trunks, which open into subclavic jugular veins, one on each side of the neck. The small branches of lymphatics pass through spherical bodies, which are termed lymphatic glands, or ganglions. It is to the disordered functions of these vessels that Cruikshank, Thomas White, Nudo, and others, have ascribed nearly every morbid change of the human body. These assertions are no doubt extravagant; yet, according to more recent researches of M. Alard, there can hardly be a doubt, that the lymphatic system, when diverted from its normal condition, contributes largely to a very important class of fatal maladies. In scrofulous affections, angioleucitis, or inflammation of the lymphatic vessels, is of common occurrence. It is to the existence of this form of inflammation that we ascribe the

local determination of this disease in many instances. From the intimation I have given you of the extent and influence of the lymphatic system, you will anticipate the necessity of remedies which direct their energies upon these vessels, and exert a controlling influence upon the function of this very important class of organs. In ampelopsin we have this *remedy*.

But you will naturally inquire, How, and in what way, does this remedy influence or control the lymphatic system? In answer to this important inquiry, I would remark that so far as I have been able to observe its effects, its influence is of that character which gives tone and energy to these vessels. I have arrived at this conclusion after frequent and repeated trials of ampelopsin in nearly every condition of the lymphatics. We have a disease, which has been very accurately described by Prof. Bennett as leucocythæmia. The nature of this disease is that of a peculiar blood affection, in which the white blood corpuscles are in great excess, and the nutritive functions are so feeble as to fail to render the essential supplies to the various organs and tissues of the body. From an extensive observation in this disease I have concluded that it is dependent upon an unhealthy condition of the lymphatic system. Accordingly, in my treatment, I have directed my remedies to this class of tissues, and have found the treatment most successful. The remedy I have principally depended upon is ampelopsin. It appears to increase the tone of these vessels, and so augment the nutritive functions as to restore the blood to its normal condition. Another class of diseases, in which I have regarded the lymphatics as mainly at fault, are those affections so common in children, in which there is a tendency to enteric and gastric irritation, characterized by frequent attacks of diarrhœa and ephemeral fever, soft muscles, weak and feeble habits, together with other symptoms indicating deficient nutrition. In these cases ampelopsin appears to exert almost a specific influence in producing



those salutary changes which impart vigour and health to the entire organism. There is still another class of affections, in which the lymphatic system appears to be at fault. I have reference to an affection which has been denominated by dermatologists squama, or scale disease. There is a great variety of forms of this affection, which are most obstinate in their power to resist the impression of remedial agents. Ampelopsin manifests a most favourable influence in the disease, and numbers of cases have yielded to this remedy after frequent unsuccessful efforts with other agents. Ampelopsin has also proved most serviceable in cases where the lymphatic system has been contaminated by syphilis, gonorrhœa, cancer, and other malignant affections. I have frequently prevented that form of angioleucitis, known as bubo, by the use of ampelopsin. I have also known inflammation and enlargement of the inguinal and axillary lymphatics, caused by other affections, to be prevented and cured by ampelopsin. From these very imperfect observations, you will notice that I regard the action of ampelopsin as almost exclusively confined to the lymphatic system, and that its principal influence is to give tone and energy to the vessels, so as to prevent the accumulation of morbid or effete matter within them. I have not observed that ampelopsin either materially increased the quantity or changed the quality of urine. When it is continued for any length of time, in doses of from one-half of a grain to a grain, four or five times a day, it will slightly increase the alvine evacuations. It also increases the quantity of bile in the fæces. From this fact I have concluded that ampelopsin contributes to transformations in the liver. In that variety of leucorrhœa dependent upon chronic inflammation and weakness of the vaginal lymphatics, ampelopsin is a most valuable article. In short, ampelopsin is a remedy of immense value in all those cases where the lymphatic system is in a feeble state, and requires a gentle stimulant and support;



hence the range of its application is very great. The dose of ampelopsin is from five to ten grains of the triturated article, or from one-half to one grain of the crude article, five or six times a day, taken immediately after each meal. Medicine given to affect the lymphatics, will be more effectual after, than before meals.

#### ALNUIN.

*Alnuin* is the active principle of *Alnus Rubra*, or *Swamp Alder*, *Tag Alder*, &c. I have previously informed you that the old *sing song* in regard to nearly all medicines is, that they are alterative, tonic, resolvent, astringent, &c. Now the manufacturers of these medicines have adopted the old tune, and apply to these new remedies the same properties that have been transmitted to the crude ones. In this way they have done much mischief in misguiding the profession, and bringing their medicines into disrepute. Mr. Keith says of alnuin, that it is an alterative, resolvent, tonic, and sub-astringent. Now who would know anything about the real medical power of this drug from these vague terms, or what physician would even guess the power of alnuin to cure disease from what he has said about it? Now alnuin is a remedy which, like all other remedies, has a specific influence upon special tissues and organs of the body, both in health and disease—and the subject of our inquiries is, What are these effects, and how are the tissues influenced by the drug? If you introduce one or two grains of alnuin into the stomach in the normal state, one of the principal sensations experienced is that of hunger, and, if the drug be continued for a few hours without food, a peculiar burning sensation is felt. This symptom, however, soon disappears on taking small quantities of food. The uniformity with which this result follows the introduction of alnuin has led me to infer that one of the influences of alnuin is to excite the gastric glands, and to cause a free discharge of gastric fluid. This experiment with alnuin on

the healthy stomach has led me to try this article in such diseases as are connected with imperfect digestion, dependent upon inactivity of the gastric glands, and a consequent deficient supply of the gastric fluid. It is estimated that about fourteen pounds of gastric fluid must be secreted every twenty-four hours, in order to insure healthy digestion. Now if the gastric glands fail to furnish this supply, a species of dyspepsia is the result. This kind of dyspepsia we find prevalent in a large number of diseases, especially during convalescence.

It is in this class of cases that the profession have long felt the need of a remedy to stimulate those glands, and hasten those transformations essential to the production of gastric fluid and healthy digestion. The ordinary stomachics, while they produce a morbid appetite, do not increase the gastric secretion; hence they contribute to, rather than prevent this peculiar dyspeptic condition. Alnui appears to supply this deficiency in the materia medica, and, according to my observations, it exerts a specific influence upon these organs. In the case of a patient recently under my charge, the symptoms were evidently those in which the quantity of gastric fluid was inefficient to digest food sufficient to support healthy organization. The symptoms were a heavy and sleepy feeling after meals, together with gastrodynia, flatulency, alternate constipation and diarrhoea, and other evidences of imperfectly digested ingesta. To test the effects of alnui, I gave twenty grains of triturated alnui one-half hour before and one-half hour after each meal. The beneficial influence of the remedy was manifest in a few days, and by the continuation of the treatment for a few weeks, the patient entirely recovered. I have also tried this remedy in many other similar cases, and in every instance either marked improvement or a radical cure was effected. From all that I can learn of alnui, I have no doubt that in this class of dyspeptic cases it is far the most reliable remedy ever introduced to the

profession. But you must avoid falling into the old error of regarding remedies as removing all kinds of dyspepsia with equal facility. Dyspepsia means a difficulty of digestion, and it may depend upon a great variety of very opposite conditions of the digestive organs. In the use of alnuin I have alluded to an indigestion caused by a deficient secretion of gastric fluid, and consequent deficient solution of the food. Now dyspepsia may be produced by ulceration of the mucous coat, by chronic inflammation of the stomach, by cancer, and a great many other causes—and if you should mistake any of these forms of dyspepsia for the one in which I have recommended alnuin, it is more than probable that your remedy would fail to give relief. Alnuin, in addition to its specific influence on the gastric glands, appears to exert a tonic and invigorating influence on the lymphatics and blood glands generally. Hence, where there are great debility, and a feeble and impoverished state of the blood, I am in the habit of using alnuin in combination with iron. A very convenient prescription in these cases is the following:—Take alnuin, one dram; carbonate of ferri, one and a half drams; simple syrup, six ounces. Mix. Dose—one teaspoonful four times a day; one after each meal, and one on retiring.

You will remember that all the concentrated remedies form a perfect solution in simple syrup after trituration. The dose of alnuin, in ordinary cases, is from one to three grains of the crude article, or from ten to thirty grains of the triturated, three or four times during twenty-four hours. I always use these remedies triturated.

#### APOCYNIN.

Apocynin is the medical virtue of the *Apocynum Cannabinum*—Black Indian Hemp, &c.

In the investigation of apocynin we labour under the same difficulty that we do in the investigation of other

agents of this class. Dr. Jones, in his *Materia Medica*, says of apocynin, that "it is said to possess all the properties of the crude agent;" and that is all he says upon the subject, except that "the dose is from one to five grains." Of the crude agent he rehearses the old verbiage that it is "emetic, cathartic, expectorant, diaphoretic, diuretic, alterative, tonic and errhine." The merest tyro in medicine cannot fail to see that the properties ascribed to the crude article are opposite, contradictory, and do not give the least idea of its medical properties, much less of the concentrated preparation.

Dr. King, in his *American Dispensatory*, says even less relative to apocynin than does Dr. Jones, although he ascribes to the crude article nearly the same virtues. Now here are two massive volumes, and neither of them gives the least information relative to one of the most powerful and valuable agents of the Eclectic *materia medica*. What is true in relation to apocynin is equally true in relation to nearly all the principal Eclectic remedies. It is true that there have been large books compiled about roots and weeds, which are much better adapted for the use of herb gatherers than they are for educated Eclectic physicians. What physician, now-a-days, would think of discarding quinine, to drug his patient with ounce doses of Peruvian bark?—and yet the idea is no more absurd than that which appears to be entertained by those who pretend to manufacture Eclectic books on *materia medica*. Indeed, the idea of writing an Eclectic *materia medica*, and omitting the Eclectic remedies, is to me quite a novel one. After taking half a grain of apocynin every two or three hours, for twenty-four hours, the urine will be slightly increased in quantity, and the specific gravity materially increased. In one case, after giving two grains of apocynin, in half grain doses, at intervals of three hours, the specific gravity of the urine was increased twenty degrees. In hundreds

of cases in which I have tested the urine by the urinometer, after using apocynin, I have scarcely failed to observe the increase in the weight of the urine. The character of the solid matter eliminated by this medicine appears to be urate of ammonia, and the earthy phosphates. A more careful observation, however, is necessary, in order to determine the precise character of the solid substances eliminated through the kidneys.

The next, and what appear to be the secondary effects on the system, are its peculiar influences on the brain and nervous system. The first observable impression of the remedy on the brain is that of a sense of pressure around the head, as though a tight bandage were passed around it. Next, there will be vertigo, with a swimming sensation, the pupil of the eyes slightly dilated, and a decided confusion of ideas. If the remedy be continued, a sense of nausea will soon follow, which will quickly be relieved by vomiting and purging. The heart beats slowly, and if the remedy be not discontinued, it becomes irregular in action. I have never seen this remedy carried beyond this point, but presume it might be pushed to produce serious consequences. From these observations relative to the action of apocynin on the healthy system, we infer that the specific tendency of the drug is to the kidneys and nervous system, and the use of the remedy in the diseased condition of these tissues fully confirms these conclusions.

The next part of our inquiry is to see if we can ascertain what that action is. Does it increase the function of the kidney, and thus hasten those transformations essential to the production of urine? Or does it, by hastening the liberation of the tissues and elements of which the urine is manufactured, furnish a greater quantity of these materials to the kidneys? Although we may not be able to demonstrate the latter theory, I think, from all the experience I have had with the use of the remedy, that I am

warranted in assuming the conclusion that apocynin hastens disintegration, not only of the nitrogenous elements of the body, but also of the nerve tissue, especially liberating the phosphates, and probably other agents. Being in possession of these facts, we can now study the effects of the remedy in disease, and, if possible, ascertain in what peculiar affection or affections the remedy is indicated. The principal use I have found for this agent is to remove from the blood and other organs of the body excesses of the elements which the medicine eliminates. Hence, when the system is overloaded with those poisonous nitrogenous elements imperfectly converted into urine, this agent serves a valuable purpose. Take the case of a marsh fever, when the teeth are covered with sordes, the nerves paralyzed, and the brain intoxicated by the retention of uric acid in the system, one-fourth to one grain of apocynin, repeated at intervals of one or two hours, soon relieves the patient. Indeed, it matters not whether it be a fever or any other disease, if this condition of the system occur, apocynin will give relief. Again, apocynin, in connexion with ampelopsin or menispermin, is an invaluable remedy to remove dropsical deposits in the various cavities of the body. Ampelopsin so excites the absorbents as to rapidly fill the blood with the fluids previously accumulated in the cavities of the body, and apocynin soon converts the dropsical fluid into products to be eliminated through the kidneys. Apocynin is also valuable in diseases of the kidneys, especially in congestion and granulation, which give rise to albuminuria. In this affection I have used apocynin with marked effect. It is also a valuable remedy in many conditions of the brain and nervous system, especially in cases of induration and hardening of the nervous structure. The dose of apocynin is one-eighth of a grain to one grain before trituration, or from two to twenty of the triturated article, repeated at suitable intervals.



## ATROPIN.

Atropin is the active principle of *Atropa Belladonna*, or *Deadly Nightshade*. From the limited experience we have had with this article, we infer that its principal influence is upon the skin and mucous tissue, and that its action is to increase elimination from the skin, and transfer eruptive disease from the mucous membrane to the integument—hence its use is principally confined to exanthematous fevers, and other eruptive diseases. In scarlatina and rubella, when the eruption does not appear on the skin, one-half grain of atropin, triturated in twenty grains of sugar, and added to one tumbler of water, given in doses of one teaspoonful of the solution, proves most effectual. Farther experiments are necessary with this article, however, in order to develop its full medical properties. The dose of atropin is from one-fifteenth to one-fortieth of a grain of the crude article, to be triturated with ten times the quantity of sugar. We hope, at some future period, to be able to give the profession more full information as to the virtues of this very powerful drug.

The next article to which we invite your attention is one with which we are far more familiar, and have had a long and most favourable experience with. It is

## ASCLEPIN,

The active principle of *Asclepias Tuberosa*, *White Root*, &c. This article manifests its curative power upon the serous tissue. You are aware that we have a class of membranes which, from their colour, have been denominated diaphanous; and from the peculiar thin or serous fluid with which they are moistened, they are called serous. A knowledge of the extent and distribution of this peculiar membrane is indispensable to the full appreciation of the character and vital importance of those morbid changes which occur in this tissue when inflamed by disease. A peculi-



arity of these membranes is, that they are hollow sacs, everywhere closed; hence they have been denominated shut sacs, *sacci occlusi*. These membranes are also so arranged that one portion is doubled within the other. The outer surface is applied over the walls of the regions which the serous membrane lines, while the other surface is applied over the organ or organs contained in that region. From this arrangement you observe that each organ is covered with a portion of the serous membrane; not that these organs are enclosed within this membrane, as I have sometimes heard described, but they are on the outside, the main portion of which is covered by a reflected portion of the diaphanous tissue. Thus the lungs are on the outer surface of the pleura, the heart on the outside of the pericardium. The stomach, intestines, liver, spleen, and pancreas, are on the outside of the peritoneum. You will also notice from this arrangement that the portions of these organs at which the nerves and vessels enter are left unprotected. I have stated to you that this membrane was a shut sac. The only exception to this is in the peritoneum of the female, where the membrane is perforated at the upper extremity of the Fallopian tubes. The serous membranes are the seat of various morbid processes. These changes mostly occur as the result of inflammation. As the inflammation attacks various portions of the serous tissue, it has been denominated pericarditis, peritonitis, pleuritis, orchitis, meningitis; and when the viscera which the serous tissue covers are involved, we have gastritis, enteritis, colitis, mesenteritis, epiploitis, cystitis, hepatitis, lienitis, hysteritis. As the result of the inflammation of this membrane, either acute or chronic, we have empyema, hydrocephalus, ascites, hydrocele, empyocele, and pyrocardia, together with all the alterations of structure and morbid growths which are produced by the metamorphosed exudations, such as fibroma, liphoma, cystoma, and adenoma, epi-

thelioma, enchondroma, carcinoma, &c. All these diseases, and many more, are but the result of those morbid changes which occur in connexion with the serous tissue; and when I tell you that aselepin manifests a most specific healing power over this very important and vital organ, you will fully appreciate its utility as one of the articles of the materia medica. There is, perhaps, no remedy which exerts a more specific influence over the diseased condition of the serous membrane than does aselepin. In cases of pleuritis, after the stomach and bowels have been thoroughly cleansed by an emetic and a mild purge, the skin cleansed by a bath of warm water and soap, and a hot pack applied over the seat of the inflammation, then, by adding twenty or thirty grains of triturated aselepin to a tumbler of water, and giving one teaspoonful of the solution every ten or fifteen minutes, all traces of the pleuritis will disappear, provided it be given in the early stage of the disease, and the system has been properly prepared for it. The length of time required to remove common pleuritis with aselepin does not, under ordinary circumstances, exceed four or five hours. In cases, however, where the heart's action is violent, and the system of full habit, the cure will be facilitated by alternating the aselepin with five or ten drops of the tincture of veratrum viride, until the heart's action is reduced, and slight nausea is produced. But aselepin is not confined to the removal of inflammation from the pleura. It exerts its salutary influence on all portions of the serous tissue with almost equal power. In peritonitis, carditis, and acute inflammation of other portions of this membrane, I have noticed the same specific effects and speedy cures performed by aselepin.

#### BAPTISIN.

The next article to which I have to invite your attention is Baptisin. Baptisin is the active principle of wild Indigo, or *Baptisia Tinctoria*. Baptisin is an article which pos-

sesses rare and valuable medical properties. It does not, like many other medicines, appear to direct its influence upon special tissues, but it manifests its peculiar power over all the tissues and organs of the body. What is this influence, then, is our first inquiry. If we take one or two grains of baptisin for several days, when in a state of health, the urine will be diminished, perspiration checked, and the quantity of carbonic gas expelled from the lungs materially lessened. As the result of these diminished exhalations from the lungs, skin, and kidneys, the blood becomes loaded with *detritus*, and the whole function of the economy impaired. Baptisin exerts a different influence upon the system from that usually ascribed to it, and experiments have fully confirmed these views. The medical properties of baptisin, then, consist in its power to prevent decomposition of the tissues; hence its great value. In phthisis, scrofula, and in fact most chronic affections, the disordered action consists in a too active secondary digestion and deficient primary; that is, disintegration and waste of the tissues occur more rapidly than digestion, and progressive metamorphoses supply the organ with newly-formed tissues; hence the soft and thin muscles, the emaciation, expectoration, colliquative perspiration, diarrhœa, chills, and hectic fever. All these, and many more of the distressing symptoms connected with chronic diseases, are but the result of rapid retrograde metamorphoses. It is in this condition of the system that baptisin manifests its most wonderful curative power. You can hardly imagine my delight in witnessing the magic power of this medicine over this heretofore uncontrollable condition of the system. When the conservative powers of the system have lost their influence, and the chemical forces are hastening that decomposition, which always renders the perpetuity of the human organism impossible, baptisin, with its magic influence, arrests this activity of secondary digestion, and restores the equilibrium of the disordered organism. But I anticipate the inquiry,

What are the properties of the medicine? Is it alterative, diuretic, diaphoretic, &c., &c.? I have too frequently alluded to these terms, and similar unmeaning phraseology and lumber of the profession, to occupy your attention with it at this time. I merely reiterate what I have so frequently said, that these terms, as they are generally used and applied to medicines, are vague generalities, and have a powerful influence to embarrass and misguide the student in his researches into the real nature and properties of medicines. The inquiry, and the only one of importance at this time, is, What influence does this drug manifest over disease, and in what diseases can we rely upon it? I have already stated that the power of baptisin to arrest disorganization has been amply demonstrated, not only in disease, but on the healthy tissue, and it would appear as though all that is required to understand its use is to have a full and complete knowledge of the condition of the system in health and disease. And here I would remind you that it matters but little how well you may be versed in therapeutics, in order to be successful in the treatment of disease you must have a full and critical knowledge of every organ and tissue, with a minute understanding of all the structural, chemical, and vital changes which occur during the progress of disease. As I have already intimated, in chronic affections nearly all the leading pathological changes consist in the melting up of the tissues by the chemical forces of the body, and the most essential medical interference consists in the arrest of this rapid waste. Baptisin will do this. In phthisis, where great emaciation and debility exist, one or two grains of baptisin administered two or three times a day, in connexion with a nutritious diet, and a moderate quantity of cod liver oil, produces a magic influence. You may inquire whether the cod liver oil and nutritious diet, administered without baptisin, would not produce the same result. In answer to this inquiry, I can positively assure you it will not, in the majority of cases.

Allow me to refer you to one case as an illustration. Mr. E. G., a young man of a strong phthisical habit, contracted a violent cold, and the disease became fully developed. He applied to his physician, who prescribed the ordinary Allopathic treatment, together with cod liver oil. He grew rapidly worse, and in the course of six weeks the disease became so far advanced that hectic fever, night sweats, and œdematous extremities, indicated a near approaching dissolution. Upon consulting me I prescribed one-half grain of baptisin four times a day, and the cod liver oil and diet to be continued. As the result, the night sweats, hectic fever, and other distressing symptoms, gradually disappeared; and by the use of baptisin, in connexion with other proper remedies, the young man has entirely recovered. I might refer you to many other similar cases, but this must suffice. I can assure you that you will find in baptisin a most valuable auxiliary in the treatment of phthisis. It is always indicated when there is great debility, connected with much expectoration; or when there are night sweats, copious discharges from the bowels, and debilitating perspiration, it will be found most beneficial. It is also of great value in the same condition of the system, connected with scrofulous affections. One of the most fatal mistakes made by medical practitioners, is the administration of alteratives, or such remedies as hasten retrograde metamorphoses of the tissues in phthisis and scrofula. The essential nature of these affections consists in a deficient nutrition and accelerated decomposition. In the treatment of scrofula, then, instead of giving stillingia, corydalin, iodide of potassa, &c., baptisin, hydrastin, cod liver oil, caulophyllin, chimaphilin, and the active principles of cinchonia, are the remedies.

Another important influence manifested by baptisin, is its power to arrest gangrene and mortification. A case which recently occurred in my practice, was that of a young man, with acute gastritis. He had been treated by one of the Old School physicians, and his treatment was *secundum artem*;

hence the vital powers succumbed to the disease and the remedies, and gangrene of the small intestines was about terminating his career. The symptoms of the gangrene were unmistakable. In this condition I was called, and advised the use of baptisin, in doses of one-fourth of a grain every half hour, in connexion with cloths wrung from hot whisky, applied to the bowels. The effect was salutary. The vomiting of dark green matter soon ceased; and the pulse, which was scarcely perceptible, soon became more full and regular, and by the use of proper auxiliary remedies the patient recovered. I have in many cases observed like effects from the timely use of baptisin in early gangrene. Hence, in all cases where there is acute inflammation, which threatens to terminate in the dissolution of the structure of the part, baptisin may be used with good effects. Not only is baptisin a valuable internal remedy, but it may be used externally with equally good results. In chronic ulcers, where a constant solution of the continuity of the tissue prevents a union, baptisin sprinkled over the sore, followed by a stimulating lotion, is most effectual. I have also used it with happy effects as a wash in indolent chancre. I have also used a solution of baptisin as a topical application in diphtheritis and scarlatina anginosa with most pleasing results.

From what I have said relative to the medical properties of baptisin, you may infer that it has a wide range of applications, and in this you are correct. I can assure you, after an extensive use of it in a very large number of cases, I have the greatest confidence in its power over disease, when properly administered. The dose is from two to five grains of the triturated article, and from one-eighth to one grain of it in the crude state.

#### BAROSMIN.

Barosmin is the active principle of the *Barosma Crenata*, or *Buchu*. There are but few medicines which possess



the power to eliminate water from the system, without producing other transformations more or less injurious to the healthy organism. Barosmin, however, appears to be free from these objections; as, while it possesses the power to produce most extensive elimination of water from the system through the kidneys, it does not appear to produce other essential changes. The properties and uses of barosmin, then, consist in its power to remove from the cavities and tissues of the body superfluous quantities of liquor sanguinis, which have been deposited as the result of congestion or inflammation, and in which no essential changes are required in the fluid previously to its absorption and elimination from the system.

The diseases for which we have found barosmin most beneficial are simple dropsical deposits; such as ascites, hydrothorax, œdema, anasarca, &c., &c. It must be remembered, however, in the treatment of these and all similar affections, that the dropsical deposit is a mere symptom of some primary disease, which produces those changes upon which exudation and dropsical accumulations depend. Hence it must not be inferred that a remedy that removes excessive accumulations of fluid from the body will produce radical cures, as in the treatment of dropsical diseases two indications are to be fulfilled; first, to remove the dropsical fluid; second, to remove those pathological conditions upon which the dropsical accumulations depend. Barosmin, when properly administered, will fulfil the first indication, while other appropriate remedies will be required to fulfil the second. Barosmin, then as a physiological remedy, is one which may be regarded as hastening those transformations essential to the elimination of fluid from the body, without producing other pathological or physiological changes.

The amount of fluid eliminated from the system by barosmin, under favourable circumstances, is frequently most



extensive and rapid. A case which occurred in my practice, was that of a lady afflicted with anasæra. The entire cellular tissue was distended to its utmost capacity, notwithstanding the frequent attempts to remove the fluid by means of drastic purgatives and the ordinary diuretics. In this case I administered ten grains of triturated barosmin, in one-half teacupful of tepid water, every hour, and kept the surface cool by frequent spongings with cold water. The effect was most salutary, as the entire cellular tissue was emptied of its fluid contents in about seventy-two hours. Then by the use of proper remedies to remove the chronic peritonitis, upon which the general dropsy depended, the patient was entirely cured. Many other cases might be cited, as illustrating the specific power of this remedy over dropsical diseases, but this must suffice. The dose is from five to thirty grains of the triturated barosmin, repeated as often as indicated.

#### C A U L O P H Y L L I N .

This article is prepared from the *Blue Cohosh*, or *Caulophyllum Thalicteroides*. There is a great difference between caulophyllin and maerotin. Caulophyllin is a much more valuable article for females than for males, although you will find it of great value in some diseases of the latter. This article acts specifically upon the mucous membrane of the vagina and urethra; a very important medicine, and valuable in acute and subacute vaginitis. Where we have inflammation of the vagina, it is one of the most valuable medicines we possess. It is adapted to all diseases connected with the vagina, dependent upon inflammation. Inflammation of the vaginal flux, which is a simple exudation from the mucous membrane; or an escape of the liquor sanguinis, which is converted into pus corpuscles, and constitutes what is called vaginal leucorrhœa. You will find this a common disease in females of all ages. Caulo-

phyllin is very useful in those cases also where there is inflammation of the mucous membrane of the urethra; of which there is a great number of cases. It is brought about by improper practices. Young men have it from masturbation. It is also a sequel of spermatorrhœa. Caulophyllin is well adapted to these cases. It seems to stimulate the mucous membrane, and remove local irritation and inflammation. I have also administered it in chronic bronchitis with good effect. From the very numerous experiments I have made with this article I am satisfied that its principal influence is exerted upon the mucous membrane of the utero-genital organs, and gives tone and energy to this tissue. In cases of prolapsus of the vagina, I have found caulophyllin, in connexion with other appropriate remedies, to be most valuable. In numerous cases of periodical vaginal leucorrhœa I have used from five to ten grains of the triturated caulophyllin, and had it followed by almost immediate relief without any other remedies. You will observe, in the treatment of female diseases, that most physicians are in the habit of presenting a great variety of promiscuous compounds, without any idea of the specification of any one of the remedies used. This exceedingly unscientific method of prescribing is but seldom followed with good results. The only reliable method of treating disease consists in carefully studying the specific action of remedies upon special tissues, and then applying those remedies for the removal of the morbid action. The article that I am now presenting to you, is one to which a great variety of medicinal properties has been ascribed. Upon careful observation, however, I am satisfied that most of the supposed virtues of the remedy are merely its toxic influences on the system itself, and not its real power to remove disease. I have already intimated that caulophyllin was a valuable remedy in spermatorrhœa. This is especially the case where the disease is dependent upon chronic irritability of

the urethral mucous membrane. The dose of caulophyllin is from three to five grains of the triturated article, to be repeated as often as indicated.

#### CERASEIN.

Cerascin is the active principle of *Cerasius Virginiana*, or Choke Cherry. Cerascin appears to exert its influence mainly upon the erectile tissue. The influence which it produces upon this tissue is that of a stimulant; as, after a full dose of cerascin, the circulation through the capillaries will be observed more active, and in case that this tissue be disordered, and the capillaries over distended with blood, as occurs in all intermittent and remittent diseases, as well as most scrofulous affections, cerascin will contract the caliber of the capillaries, and restore the circulation in the tissue, or organ composed of the tissue, to its normal condition. You may not be aware, that this erectile, or spongy tissue, is the seat of many of the most essential morbid changes in all intermittents, and some other diseases. This is especially the case in ague and spermatorrhœa. During the cold stage of ague we observe the spleen to generally enlarge; until, in the majority of cases, the enlargement is so extensive as to encroach upon the stomach, and press the diaphragm against the base of the lungs and heart, thus most essentially interfering with the circulation and respiration. After the cold stage is past we observe the spleen to gradually diminish in size; until, by the expiration of the entire paroxysm, in ordinary cases, it resumes its normal condition. From this circumstance we have inferred that any remedy which would prevent this periodical hyperæmia, or congestion, would prevent these paroxysms of ague, and repeated experiments have proved this hypothesis to be correct; and cerascin is one of the remedies that we have observed to produce this

effect in a remarkable degree. The spleen being composed almost exclusively of elastic erectile tissue, and eerasein exerting such a specific influence upon it, we inferred that its principal power was manifested upon this tissue. Hence the great value of eerasein, as a remedial agent, is its power to control those periodical pathological changes, which are so prominent in a large class of affections peculiar to this country. In intermittent and remittent fevers, eerasein, either alone or in combination with quinine, is a most valuable remedy to arrest the periodicity of the disease. A dose of eerasein, requisite to arrest the periodicity of these fevers, is from ten to sixty grains, divided into proper doses, and given at suitable intervals during the most intermittent or remittent portion of the paroxysms. In most cases of mild form, in intermittents and remittents, we have found eerasein to act as an antiperiodic with as much certainty as quinine; but in the malignant forms of the affection, there is no remedy known to the profession, on which we can place so much reliance as an antiperiodic, as on the sulphate of quinine. The value of eerasein, however, does not cease with its uses in miasmatic fevers, but it is a valuable remedy in marsh dysentery, periodical leucorrhœa, hysteria, epilepsy, and spermatorrhœa. In the latter disease I have known eerasein to manifest most marked curative power, when all other ordinary remedies had failed. The dose of eerasein is from one to ten grains, repeated at proper intervals.

#### CHELONIN

Is the active principle of *chelone glabra*, or *balmony*. Chelonin manifests its most prominent influence upon the mucous membrane of the stomach and bowels. It is one of those agents that we can trace through all its medicinal impressions upon the living tissues. Chelonin, when introduced into the stomach, in its normal state, in doses of one or two

grains every two or three hours, produces a warm and pungent feeling, which is followed by slight nausea, if the remedy be continued for ten or twelve hours. In dram doses chelonin produces nausea, vomiting, and purging; although in a few cases I have given two or three drams without producing any other effect than slight nausea and mild purging. In one-half to one grain doses, given two or three times a day, it increases the appetite and promotes digestion, without producing any other sensible impression.

In disease the power of chelonin is still more marked than in health. In all cases where the dynamic power of the stomach is interfered with, either by some specific disorder, or by some remote affection, chelonin manifests a most specific power to restore the stomach to its original condition. In cases of dyspepsia, where the indigestion is dependent upon a feeble condition of the muscles, mucous membrane, and glands of the stomach, chelonin is most valuable. In cases where patients are labouring under what they denominate a bilious habit, but which in reality is imperfect digestion, chelonin given in one or two grain doses not only removes the present difficulty, but entirely restores the digestive organs to their natural condition. Chelonin is also well adapted to restore the energies of the stomach after fever and other acute diseases; especially is this the case when the patient is of a strumous or phthisical habit. I have frequently prescribed small doses of chelonin during the convalescent stage of disease with the most happy effect. In chronic affections, such as phthisis, scrofula, and other debilitating diseases dependent upon imperfect digestion and mal-assimilation, chelonin is of eminent service. In numbers of cases of phthisis I have seen patients improve most rapidly under the influence of chelonin, in combination with iron and cod liver oil. In the case of a lady who came under my notice, where cod liver oil could

not be tolerated, I advised it to be used in conjunction with chelonin. The effect was most salutary, as the chelonin enabled the stomach to digest and appropriate the oil to the nutrition of the body. In a case of diabetes I gave chelonin, in combination with helonin; and although the case had been under the most approved Allopathic treatment for a long time without benefit, these remedies afforded almost immediate relief. The remedy had not been used ten days before the quantity of saccharine matter in the urine had perceptibly diminished. It resulted in entire restoration to health.

Another quality manifested by chelonin is its power to remove parasites from the intestinal canal. I have frequently observed the almost specific effects of this remedy as an anthelmintic. In the case of a girl afflicted with chorea, where a large variety of remedies had failed to produce a cure, I gave chelonin. It expelled from the alimentary tract a large number of *ascarides lumbricoides*, which produced a cure of the chorea. I have also combined chelonin with santonin with the most happy effect. Chelonin may be given alone, or in combination with other medicines. A very good method of preparing it is to add the desired quantity of the medicine to simple syrup, and triturate until a complete mixture is formed. As a vermifuge I have frequently added thirty grains of chelonin, and five grains of santonin to four ounces of neutralizing mixture, triturating them until thoroughly mixed. Dose, one teaspoonful of the mixture every two or three hours until it acts upon the bowels. Where chelonin is given alone, one or two grains is a dose, repeated at proper intervals. Like most of the concentrated medicines, you will find chelonin to produce the best effects when thoroughly triturated with sugar.



## CHIMAPHILIN.

Chimaphilin is a concentrated remedy, derived from the *Chimaphila Umbellata*. Its common names are *Prince's Pine*, *Pipsissewa*, *Winter-green*, *Pyrola*, *Ground Holly*, &c.; and the part used is *the plant*. Its special influence is on the *lymphatic tissues*. It is a very valuable remedy, therefore, in many diseases, such as *cholera infantum*; in which, during the development and progress of the disease, the lymphatics around the abdomen are repleté with little kernels, or tumours; in puerperal peritonitis, because the lymphatics are then materially implicated and affected; in leucorrhœa which originates in the lymphatic tissues; in tumours about the neck; in enlargement of the mammæ; and also in *chronic ulcers*, where aqueous and serous discharges are excreted from the lymphatics. To use chimaphilin aright, however, it is necessary to understand thoroughly its "modus operandi" upon the lymphatic glands. If taken for a length of time—by a female, for instance—the mammæ gradually become absorbed, and atrophy is the result—the mammæ are softened, and, as it were, flattened. In the male it causes atrophy of the testicles. If one dram be given three or four times per day, the urine will be found thickened. It does not act as a direct diuretic; no uneasiness about the stomach is felt, but there is a marked increase in the solidity of the urine. If continued for a longer period, there is a filling out of the constituency of the blood, producing œdema, leucocythemia, &c. It is not an article of food, making a healthy person more healthy; although it may be used for the removal of disease. In certain maladies the lymphatic system becomes loaded with effete matter, and is thus made the reservoir and source of violent constitutional disturbance. An opinion is gaining ground that the lymphatics are vessels employed for the manufacturing of blood; and that, consequently, the health of the blood, in a great measure, depends on the condition of the lymphatics. When they are in an unhealthy state, the glands of the



neck become enlarged, and the result is a permanent enlargement of a scrofulous or tuberculous character. In scrofula the tonsils become loaded with effete matter, and throw out a cheesy substance called tubercles; whilst a bubo is the product of a venereal poison, generated and terminating in another form of scrofulous affections. In such cases, chimaphilin, operating as a stimulant, removes the effete matter, and assists the process of elimination. It prepares materials for the kidneys to work up and work out, first as uric acid, and next as urate of ammonia. But the kidneys cannot thus act and manufacture urine, until this old effete matter is carried to them; and the carrier, (so to speak,) is chimaphilin. I was recently called to see a child, said by its attendant to have the bowel complaint. I found the lymphatics loaded with effete matter; and while so loaded a cure was a moral impossibility,—the necessary changes for digestion could not occur. For the two previous months it had been under Allopathic treatment, and dosed with opium. As a specific for this difficulty, I gave the child chimaphilin, and it proved a very valuable remedy. Whenever the lymphatics are inactive, causing, as the result, a difficulty in the lungs, the stomach, the bowels, &c., &c., and producing bronchitis, pneumonia, &c., they must be unloaded by the administration of chimaphilin. As a diuretic, however, chimaphilin does not increase the quantity of urine. It is not to be supposed, however, that chimaphilin will remove all the diseases to which the lymphatics are subject; but it obviously and invariably exercises a special and efficient influence (which no other remedy can do) in diseases of a scrofulous, tuberculous, and dropsical character.

Chimaphilin, it may also be observed, will increase exhalations from the skin, stimulate the liver to manufacture bile, and produce alvine evacuations, as well as purge the system, and drive out impure lymph through the kidneys. In a measure, too, it will check the ravages of phthisis,

prevent the advance of cancer; and while thus acting on the lymphatic glands, it will not, like iodine and potash, break up the red corpuseles, produce irritability, and disturb the organic actions of the body generally. The dose varies according to the nature of the case and the constitution of the patient; ordinarily one, two, or three grains, (trituated with sugar, to avoid local irritation, and to diffuse it more readily into the system, and this applies to all "concentrated medicines,") may be given three or four times per day. This plan I adopted not long ago, in order to cure a bubo. The patient had been mercurialized to an Allopathist's heart's content (if possible) for months. In a week, or ten days, I discharged him fully recovered; at least as far as the appearance and the existence of a bubo are concerned; but when once a man (and that for months) is mercurialized, he is never again in perfect health, but ever predisposed to a variety of aches and pains, &c. Ten trituated grains (that is, one grain of chimaphilin, and nine of white powdered sugar) is a sufficient quantity to be administered at one time to a child.

#### COLLINSONIN.

Collinsonin is the active principle of the *Collinsonia Canadensis*, and sometimes termed *Hardhack*, *Stone-root*, *Ox Balm*, *Knob-root*, *Heal-all*, *Rich-weed*, &c., &c. This remedy acts especially, and most beneficially, on the valves of the heart; though its worth and influence are not limited to these. All the serous tissues and structures of the body are subservient to its therapeutic power. These serous tissues possess small capillaries, which, when disordered and dilated, suffer fluids to ooze out; and this exudation becomes organized, as in inflammation of the pleura, the endocardium, the pericardium, &c.

Collinsonin removes the exuded organized matter, and causes the abnormal condition to disappear. I, not long since, had a patient, who was so much oppressed with a

hypertrophy of the heart, that his friends were obliged to carry him up-stairs, &c. He, however, gradually recovered under the influence of collinsonin, and is now attending to his business. Heretofore physicians knew of no remedy for the removal of so distressing and so dangerous a malady. With them it was all *guess work*, and it fearfully warned the afflicted that death was near at hand. Collinsonin unquestionably affords relief in such cases, and in most effects a cure: it, however, must be administered very cautiously. An ordinary dose is from one to two grains, three or four times per day; in larger quantities, it is a dangerous experiment. I have given ten grains five times per day; in one case, thirty grains; but this course is only justifiable under extraordinary circumstances. One dose, I may add, should always be administered at night. Collinsonin also acts with efficiency in cases of chronic peritonitis, especially in those cases which are accompanied with dropsical accumulation in the abdomen. In a case of persistent ascites, where the ordinary remedies fail to afford anything more than a temporary relief, collinsonin produced a permanent cure. The cure, in this case, I attributed to the influence of the remedy in removing the chronic inflammation of the peritoneum, which was the cause of the difficulty. I have known this remedy also to act with much efficiency in removing chronic inflammation in other portions of the serous tissue.

## COLOCYNTHIN

Is a concentrated remedy derived from *Cucumis Colocynthis*, and is commonly called *Bitter Cucumber*. It is a *hydragogue cathartic*, and, as the term implies, produces watery evacuations. Its effect is peculiar, and it may be regarded as a *substitute for the lancet*; for, by its administration, a patient is virtually bled without any venesection, (*that debilitating system of mal-practice.*) By acting as a stimulant to the serous tissues, and by the process of endosmosis and exosmosis, it is serviceable in the treatment

of dropsy, for it evacuates the blood-vessels of their aqueous particles, and these vessels, in return, remove by absorption the dropsical deposits, thus facilitating the desired cure. Colocynthin, however, must be cautiously administered, for I have known the twentieth portion of a grain to cause violent purging and cramps. Hence, in large doses, it is a hazardous remedy, producing, for the most part, inflammation of the pleura, the periosteum, &c. It is, moreover, apt to bring on nausea, causing the patient to vomit serous matter, and occasionally generates symptoms of cholera by engendering a diseased condition of the serous capillaries, as is indeed the usual consequence of all drastic medicines. But, in small doses, colocynthin has no drastic effect, and is found essentially useful in gouty and rheumatic disorders.

Rheumatism, I would here observe, is a very tractable disease, if properly treated—one in which the serous tissue is affected, and for which the dose is from one-tenth to one-twentieth of a grain three or four times per diem. By thus treating him, I thoroughly cured a gentleman of rheumatism, after he had taken, during the previous ten years, almost all the *advertised* remedies, which quacks, to their pecuniary advantage, palm off on the credulous public to their constitutional detriment. The usual dose is from two to ten trituated grains.

#### CORNIN

Is derived from *Cornus Florida*, the common names of which are *Dogwood*, *Boxwood*, *Flowering Cornel*, &c. It is an astringent and antiperiodic, and as such is often used as a substitute for quinine, to which, in some cases, it is preferable, on account of a tonic property which quinine does not possess. It is specially adapted to certain classes of diseases, in which the soft, spongy erectile tissues are involved; hence it is useful in neuralgia, epileptic convulsions, hysteria, ague, intermittent, remittent, and conges-

tive fevers. It, like quinine, is peculiarly valuable in *this country of periodicity*, and in mild cases two to four grains may be administered as an antiperiodic. One dram should be given two or three times within the twenty-four hours, (that is, during the intermission,) to break up a fever; and, as a general rule, double the quantity of cornin is requisite to be given that would be necessary were quinine employed. It is serviceable, also, in spermatorrhœa, and in excessive sensual excitement, by administering two grains every two hours. By it the gleet occasioned by gonorrhœa may be stopped in three or four days; and it is equally efficacious in leucorrhœa, in weakness of the sexual organs, and in diseases of the spleen. In short, it may be considered good in all maladies which come on periodically, and even as much as ten to fifteen grains of the crude article may be given at a dose.

## CORYDALIN.

Corydalin is the active principle of *Corydalis Formosa*, *Turkey Pea*, &c. Corydalin manifests its greatest power as an anti-syphilitic remedy. There is no fact better established than that corydalin, judiciously administered, has the power to remove this malady from the system. Within the last few years I have had most ample opportunity of testing the virtue of a great variety of remedies in the cure of syphilis. The entire inefficiency of the old practice, besides the destructive tendency of the remedies employed, has rendered an inquiry into the therapeutic power of innocent drugs over this disease of signal importance. It was with these considerations that I determined to make a most thorough test of the curative power of our concentrated Eclectic remedies; and, after repeated and extensive trial of corydalin in every form of syphilitic affection, both alone and in combination with other agents, I have demonstrated, beyond the possibility of a doubt, that corydalin removes secondary syphilis with as much efficiency and certainty as

any other known remedy, with the exception of phytolaccin, and in some cases it operates with even more certainty than it. In many cases of syphilitic chancre I have known them to heal most kindly in from ten to twelve days, under the influence of from ten to twenty grains of corydalin per diem, with no other external application than simple water dressings. In many cases, where iodide of potassium and all the mercurial preparations had failed to effect relief, I have seen most speedy cures follow the free use of corydalin. In bad cases of syphilis, where the glandular system has become much involved, the action of the medicine may be enhanced by combining it with chimaphilin, ampelopsin, and phytolaccin. The dose of corydalin varies from three to thirty grains a day, properly triturated, and administered in the form of powder, or simple syrup.

#### CYPRIPEDIN.

Cypripedin is the active principle of *Cypripedium Pubescens*. It manifests its power principally upon the gray nerve tissue, and appears to exert a controlling influence over the molecular arrangement of this structure. Hence, it exerts a most beneficial influence over diseases dependent upon a derangement of this tissue, such as delirium tremens, shaking palsy, nervous and mental debility, &c. In cases of general inertia, dependent upon a want of nerve power, cypripedin seems to manifest a stimulating and tonic influence in a remarkable degree. In many cases of both acute and chronic affections, where there has seemed to be a general prostration of the nervous energy, I have known two or three grains of cypripedin to remove the difficulty almost at once. In hysteria, epilepsy, catalepsy, and other affections of this character, this agent exerts a most beneficial influence. It is also valuable in mental affections, especially in those cases where the disease is dependent upon great intellectual exertions, or long-continued excitement. It appears to impart to the nervous system tone and vigour,



without disturbing the other organs of the body. The dose of cypripedin is from one to twenty grains, repeated from three to five times a day. It may be given alone, or in combination with such other agents as the nature of the case may indicate.

#### DIGITALIN.

Digitalin is the active principle of *Digitalis Purpurea*. This agent seems to manifest its influence principally upon the genito-urinary apparatus first, and upon the heart and arteries second. Hence its great value in the treatment of dropsical, kidney, and bladder diseases, and diseases of the reproductive organs. In spermatorrhœa, where the disease is dependent upon weakness of the seminal vessels, it has proved a very efficient remedy. It is also valuable in albuminuria, chronic cystitis, and other diseases of the bladder. It may also be used to advantage in dynamic palpitation of the heart. The dose is from one-fifteenth to one-fourth of a grain, repeated every three or four hours.

#### DIOSCORIN.

Dioscorin is the active principle of *Dioscorea Villosa*, or *Wild Yam*. Dioscorin is a specific remedy for bilious colic. It is also used in other spasmodic diseases. It operates most efficiently by being triturated ten grains to the hundred of sugar. The dose of the trituration is five or ten grains every five or ten minutes, until relief is produced.

This remedy has also been used in other forms of neuralgia with remarkable success.

#### EUONYMIN.

This is the active principle of the bark of the *Euonymus Atropurpureus* or *Burning Bush*. The Sulphate of Euonymus is much the prettiest preparation, and is of a dark colour, and on being exposed to light it becomes darker, and in time will turn entirely black. Doses given every



two or three hours for twenty-four hours will bring on cholera morbus; if continued still longer, there will be nausea, and lastly, vomiting of a bilious character. I have taken one-half dram and felt no nausea, but at the expiration of twelve hours I have had nausea, vomiting and purging with bilious discharges from the bowels. If the liver be engorged, there will be discharged quantities of bile. In weak and debilitated persons it will cause uneasiness of the bowels and abdomen, but no vomiting.

Euonymin acts on the liver, and its main office seems to be to manufacture bile for the stomach and duodenum. It will hasten the formation of bile, as some articles of food make blood. You can make bile by this remedy, but there must be bile material in the blood.

To a lady, a patient of mine, who was very weak and feeble, on whom I tried many of our most valuable remedies without success, and knowing that her digestion was impaired, I gave small doses of Euonymin, one-half grain in pill every night. She took these for a week, when she had free evacuations of the bowels. It does not stimulate the vascular system, but acts as a stimulant to the liver, causing proper action of the bowels, improving digestion, affecting the tissues generally, and bringing on a healthy condition of the whole system.

It will repair diseases of the bones,—in necrosis I have known benefit to result, and in some cases cures have been made, by giving nourishment or bone-making material in connexion with euonymin. Euonymin will assist the liver to perform its functions, but like all other medicines, will by long usage lose its effects. Has euonymin any other virtue? Is it a tonic? What is a tonic?—something to give tone to the frame, to make the heart beat faster, and to produce a stimulation of the whole arterial system? If so, it is not a tonic. But if it is to act on the liver, strengthen the stomach and digestive organs in general, then it is a

tonic. If it is to act on the heart by reducing its action and lowering the circulation, then it is a sedative. This remedy will make gastric fluid by action on the coats of the stomach specifically. It arouses the action of the pancreas, and relieves the liver. The dose is from one-eighth to one-half grain three or four times a day—of the triturated, from five to ten grains, one, two, or three times a day.

## EUPHORBIN.

The *Euphorbin* is derived from the root of the *Euphorbia corollata*. Common name, *Bowman Root*. The *Euphorbin* is emetic, cathartic, diaphoretic and expectorant. It is used in the forming stage of fever, in dropsy, dysentery and chronic affections of the liver. As an emetic, from one to three grains should be added to one-half pint of warm ginger tea, and one tablespoonful taken every five minutes until it produces free emesis. As an alterative, it should be triturated ten grains to the hundred of white sugar, and from two to five grains of the trituration given as a dose, and repeated three or four times a day.

## EUPATORIN PURP.

The *Eupatorin Purp.* is obtained from the *Eupatorium Purpureum*. Common name, *Queen of the Meadow*. The *Eupatorin Purp.* is resolvent, diuretic and stimulant. It is used in gravel, strangury, gout, dysentery, scrofula, necrosis, cancer, and in chronic affections of the uterus. It should be triturated ten grains to the hundred, and from three to five grains of the trituration given as a dose.

## EUPATORIN PERFO.

This is the active principle of the *Eupatorium Perfoliatum*. In large doses it is emeto-cathartic, but in small doses it acts as a gentle tonic to the stomach and liver, removing constipation and imparting vigour and tone to the

digestive organs generally. Dose of the crude article from one to three grains.

#### FRASERIN.

Fraserin is obtained from the *Frasera Carolinensis*, or *American Columbo*. This is more active than the English Columbo. In medical properties it resembles rhubarb and rhein; in other respects it is identical with the English variety. It acts upon the upper portions of the mucous membrane, particularly that of the stomach, in dyspepsia where the mucous membrane is engorged.

I have cured this form of dyspepsia with it. It is efficacious in typhoid fever, being tonic, and at the same time laxative to the bowels; very beneficial in female discases, as leucorrhœa, inflammation of the mucous membranes of the vagina, in gleet or in inflammation of the urethra. I have given as high as two or three grains of Fraserin, two or three times a day. For inflammation of the vagina suspend it in some non-stimulating substance, and give an injection. For debility of the mucous membrane of the stomach, give it in doses from one-half grain to four or five. Triturate with sugar, and give in simple syrup, and when indicated give Phosphate of Iron.

#### GELSEMIN.

Gelsemin is the active principle of the *Gelsemium Sem-pervirens*, *Yellow Jessamine*. There are but few remedies which appear to possess more specific power, than does the gelsemin. It appears to manifest its influence principally upon the capillary circulation of the mucous surface. In this respect it differs from nearly all other remedies; its influence appears to be to diminish the circulation in this tissue, lessen exudation, and bring about those normal changes so essential to the healthy function of this important structure. It is now nearly ten years since I first demonstrated the power of the gelsemin over dysentery,

and during that period my first observations have been most extensively verified by the almost uniformity with which this remedy controls that affection. Indeed I think there is no remedy in the *Materia Medica* that more nearly approximates to a specific, than does the gelsemin over dysentery. I have seen the most aggravated forms of this affection speedily relieved by this article. The method of using the gelsemin in dysentery is to add fifteen or twenty grains of the triturated article to a tumbler half full of water, and give one teaspoonful of the solution every fifteen or twenty minutes, until the discharges are lessened, and the urgent symptoms controlled. In bronchorrhœa, leucorrhœa, gonorrhœa, spermatorrhœa, and gleet, the gelsemin also appears to exert a most beneficial influence. It is also valuable in chronic inflammation of the stomach and bowels, especially in those disordered conditions of the digestive organs, dependent upon a constant exudation of liquor sanguinis. The gelsemin may be combined with quinine, hydrastin, iron, or any other remedy indicated by the nature and complication of the disease. The dose is from one-sixteenth to one-fourth of a grain, and in acute affections it may even be given in much less quantities.

#### GERANIN.

Geranin or Geranium is the active principle of the *Geranium Maculatum* or *Cranesbill*. The essential principle is in the tannic acid which it contains. All bitter herbs and barks contain tannin in a great degree. Merrell's preparation of Geranin contains more tannic acid, than any other one. It is very valuable where the tissue has become loose and soft, as it seems to give it tonicity. Tannin may be given where there is a relaxed and loose state of the muscles of the system. In capillary inflammation from long continued action of the muscles; where the size of the capillaries is increased in sores, hemorrhages, hemorrhage of the uterus, hemoptysis, and where an astringent is in-

icated this is a desideratum, also in dilatations of the bladder and heart. It arrests bronchial discharges and diarrhoea; it is a *reliable* astringent, dose from one to ten grains of the crude article, of the triturated one hundred grains. In chronic bronchitis I give ten grains every three hours. Small doses have antiperiodic effects.

#### G O S S Y P I I N .

This is the active principle of the *Gossypium Herbaceum* or *Cotton Root*. The properties of this article were first observed by the slaves of the south; slave women gave cotton root tea to produce abortion, and from that time to this, it has been given for diseases of the utero-genital organs. I think there was no remedy designed to produce abortion, but there are many used for that purpose. This is good to produce contractions of the uterus. It is excellent to facilitate labour, and five or ten grains will bring on moderate contraction of the uterus. If the uterus is not yet dilated, Gossypiin, like ergot, should not be administered.

Ergot will produce inflammation of the uterus, puerperal fever, and uterine inflammation, but Gossypiin will have the same beneficial effects without being followed by inflammatory symptoms. It is an excellent uterine tonic, valuable in sterility, vaginitis, leucorrhœa, dysmenorrhœa, amenorrhœa, etc., combined when proper with chalybeates. Dose from five to ten grains.

#### H A M A M E L I N .

Hamamelin is the active principle of the *Hamamelis Virginica*, or *Witch Hazel*. The hamamelis appears to exert a specific influence over the mucous membrane of the vagina, and uterus. In cases of lax, irritable and debilitated condition of this surface, producing leucorrhœa, and other vaginal and uterine discharges, the hamamelin removes the difficulty by imparting tone, and restoring the

issue to its normal condition. It also exerts a beneficial influence on the diseased condition of the mucous membrane of the bowels, bladder and stomach. Hence it proves valuable in catarrh of the bladder, chronic dysentery, and slow ulceration of the stomach. The dose of the hamamelin is from one to five grains of the crude article, properly triturated, repeated every two or three hours.

#### HELONIN.

Obtained from the *Helonias Dioica*, or *Unicorn Root*, *Starwort*, &c. The *helonin* is tonic, diuretic, and nervine. There is no medicine known, which exerts a more salutary influence over the assimilating powers of the system, than the *helonin*. Hence it is an invaluable remedy in the treatment of diabetes: it is also used in leucorrhœa, and in all cases where passive congestion of the uterus appears to be the prominent cause of the ailment. The *helonin* should be triturated ten grains of *helonin* to one hundred grains of White Sugar. Dose from five to ten grains.

#### HYDRASTIN.

Obtained from the *Hydrastis Canadensis* or *Golden Seal*. Hydrastin is a pure tonic to the muscles, imparting great tone and vigour, to both the voluntary and involuntary muscles. In dyspepsia, where the indigestion is dependent upon a weakened state of the stomach, hydrastin affords almost immediate relief. It is equally valuable in constipation, caused by a weak condition of the muscles of the bowels; and, in adynamic palpitation of the heart, produced by a feeble state of its muscular walls; in myalgia, and pain and fatigue of the muscles, either from exhaustion by over exercise, or by previous disease, the hydrastin is almost a specific. It may be given alone, or in combination with iron, or such other remedies as the nature of the case may indicate. Dose from one-half to three grains repeated every two or three hours.



## HYOSCIAMIN.

The Hyosciamin is obtained from the *Hyoscyamus Niger*, or *Henbane*. It is anodyne, antispasmodic, and laxative. It is used in neuralgia, gout, asthma, phthisis, irritability of the urinary organs, and nervous affections. It should be triturated, one grain to ten of sugar, and from one-half to one grain of the trituration is a dose.

## IRISIN.

The Irisin is obtained from the *Iris Versicolor*, or *Blue Flag*. It is alterative, purgative, diuretic, and anthelmintic. It is used in syphilis, chronic hepatitis, scrofula, rheumatism, &c. The trituration of this remedy is ten to the hundred, and from five to ten grains is a dose.

## JALAPIN.

The Jalapin is obtained from the *Ipomœa Jalapa*, or *Jalap*. The Jalapin is a hydragogue cathartic, and is used in dropsy, congestion of the liver, &c. The dose of the triturated is from five to ten grains.

## JUGLANDIN.

The Juglandin is prepared from the *Juglans Cinerea*, or *Butternut*. It is cathartic and alterative. It appears to exert most of its influence upon the dermoid tissues, where it is used in cutaneous diseases with very happy results. It is triturated the same as the other concentrated remedies. Give it in ten or twelve grain doses three times in the twenty-four hours.

## LEONTODIN.

Leontodin is the active principle of the *Taraxacum Leontodin*, or *Dandelion*. There are but few remedies which possess more direct influence over the liver in imparting tone and hastening those transformations essential to the production of bile, than does the leontodin. In all



cases where there is atrophy of the liver, passive congestion, or deficient biliary secretion, the leontodin affords prompt relief. It is not directly a purgative, but, by its stimulating and tonic power over the liver, it increases the alvine evacuations. Where a hepatic purge is required, nothing acts more promptly than two or three grains of leontodin, and one half grain of jalapin. Dose, from one to five grains of the crude article, repeated as indicated.

## LEPTANDRIN.

The Leptandrin is prepared from the *Leptandra Virginea*, *Culver's Physic*, or *Black Root*. It is alterative, tonic, and hepatic. It is used very extensively as an alterative to the mucous surface, in inflammation of the glands of the bowels, in chronic diarrhœa, and dysentery. It is also used in scrofula and chronic bronchitis. The leptandrin is to be triturated ten to the hundred, and from ten to twenty grains given at a dose.

## LOBELIN.

The Lobelin is obtained from the *Lobelia Inflata*. It is emetic, diaphoretic, antispasmodic and expectorant. The lobelin is one of the most valuable medicines in the materia medica. It is used in all cases where a remedy possessing those properties is indicated. As an antispasmodic, it may be used in all cases of convulsions, croup, &c.; also, in asthma and spasmodic croup. As an emetic, it may frequently be indicated in the formative stage of fevers, dysentery, jaundice, lung fever, &c. As an expectorant, it may be used in chronic catarrh, pneumonia, &c. The lobelin should be triturated ten to the hundred of sugar, of which from one to ten grains may be given as an expectorant, from ten to forty as an emetic, and from five to ten as an antispasmodic.

## LUPULIN.

Lupulin is obtained from the *Humulus Lupulus*. Common name, *Hops*. The lupulin is tonic, anodyne, and anaphrodisiac. It is used very extensively in all nervous diseases in the place of morphine, for which it serves as a good substitute;—it is also used in spermatorrhœa and chronic gonorrhœa, for which it operates with great efficiency. For loss of sleep it serves all the purposes of morphine. And of late it is becoming quite a popular remedy for ague, and its power over that disease leads me to infer it to be quite a strong antiperiodic. It may be triturated, and from five to ten grains given as a dose, and repeated as indicated.

## LYCOPIN.

Lycopin is the active principle of the *Lycopus Virginicus*. It exerts its influence mostly on the mucous membrane of the bronchia, and is found most beneficial in bronchorrhœa, hæmoptysis, chronic bronchitis, and other cases where there is a softened and debilitated state of this portion of the mucous membrane. It may be used alone or in combination with other drugs. I have found it valuable in chronic bronchitis, given in connexion with hypophosphite of iron and cod-liver oil. The dose of the lycopin is from two to five grains of the crude article.

## MACROTIN.

Macrocin is the active principle of the *Macrotus*, or *Cimicifuga Racemosa*. The macrocin possesses most active metastatic properties, i. e., the power to transfer diseases from the mucous membrane to the integuments. It is over fifteen years since I first demonstrated the power of macrocin to relieve eruptive diseases of the mucous surface by transferring them to the integuments. In measles, where the eruption is threatening disorganization of the mucous membrane of the bronchia, from one-eighth to one-fourth

of a grain of maerotin, repeated every half hour, soon transfers the eruption to the skin, and relieves the difficulty. It is equally efficacious in scarlatina, small pox and diphtheritis. In typhoid fever, where the eruption is confined to the bowels, producing diarrhœa, gastric and cerebral difficulties of an aggravated character, relief is soon afforded by the proper use of the maerotin. In small-pox, where the pustules are either imperfectly developed, or recede too early, maerotin affords most prompt relief. In short, in all cutaneous and eruptive diseases, where the difficulty either locates upon the mucous surface, or is liable to be transferred to it during its progress, there is no remedy that meets the difficulty so promptly as does maerotin. It is also used in female diseases where the nervous system is prostrated—also, in diseases of the serous tissues. It is best administered in cutaneous diseases by adding fifteen or twenty grains of maerotin to a tumbler half full of water, and giving one teaspoonful every fifteen or twenty minutes, until the desired effect is produced. In female diseases, and rheumatism, from one-quarter to one-half grain of the crude article may be administered and repeated at proper intervals.

#### MENISPERMIN.

Menispermin is the active principle of the *Menispermum Canadense*, or *Yellow Parilla*. The menispermin exerts its influence principally on the gastric and salivary glands. If given in large doses, and continued for any length of time, it produces ptyalism and abnormal discharge of gastric fluid. It is found most beneficial in cases where there is adhesive inflammation, and where it is necessary to break up organized deposits and hasten disintegration of tissue. From one to five grains may be given as a dose.

#### MYRICIN.

The Myricin is obtained from the *Myrica Cerifera*. Common name, *Bayberry*. It is astringent and alterative.

It is used in scrofula, dysentery and follicular stomatitis. There are but few remedies which exert a more salutary influence over a diseased condition of the mucous surface than this. It is also used externally upon indolent ulcers. It should be triturated ten grains to one hundred, of which from five to ten grains are a dose. When used externally, the triturated powder should be sprinkled upon the surface, followed by an elm poultice.

#### PHYTOLACCIN

Is the active principle of the *Phytolacca Decandria*. Common names, *Poke Root*, *Garget*, *Snake Root*, &c. It is alterative, purgative, diuretic, and antisymphilitic. This remedy possesses almost specific power over syphilis. It is used in tuberculous affections of the liver and spleen—also in cancer and scrofulous cachexia. It is used externally for indolent scrofulous ulcers, necrosis and cancers. I have found an ointment of this article valuable in obstinate hemorrhoids. For internal use it should be triturated ten grains to one hundred of sugar. In syphilis, from three to five grains of the trituration should be given three or four times a day. If there should be chancre, a small quantity of the untrituated should be spread upon it. If this course be persisted in until a constitutional impression is made by the phytolaccin, a cure will generally be effected. In scrofulous and hepatic diseases, one or two grains of the triturated should be given two or three times a day.

#### PODOPHYLLIN.

This is obtained from *Podophyllum Peltatum*. Common names, *May Apple*, *Mandrake*. It is alterative, emetic, cathartic and resolvent. The action of podophyllin upon the glands is somewhat like the mercurials. When given alone, as a cathartic, its action is very slow, requiring from six to twelve hours. As an alterative, it is used in all cases of hypertrophy and local congestion

It exerts a specific influence over the liver, stimulating it to increased secretion of bile. As a resolvent, it is used in adhesive inflammation, following pneumonia, peritonitis, and pleuritis. It is used to defibrinate the blood in alterative doses, and as a general stimulant to the absorbents. It should be triturated ten grains to the hundred. From one to two grains of the trituration are used as an alterative, and from two to five grains act as a cathartic.

## POPULIN.

The *Populin* is obtained from the *Populus Tremuloides*, or *Quaking Aspen*. The *Populin* is tonic, alterative, vermifuge, and stomachic. It is used in dyspepsia, costiveness, hysteria, &c. It is to be triturated, and from three to five grains given as a dose. It is also valuable in all diseases of the bladder.

## PRUNIN.

The *Prunin* is obtained from the *Prunus Virginiana*. Common name, *Wild Cherry*. It is a tonic expectorant, and nervous sedative. The *Prunin* is a remedy well calculated to act beneficially in the early stage of phthisis, and in chronic bronchitis. It has been used lately as an antiperiodic with good success. The prunin should be triturated, ten of prunin to the hundred of sugar, and from five to ten grains given at a dose.

## PTELIN.

The *Ptelin* is obtained from the *Ptelia Trifoliata*. Common name, *Swamp Dogwood*. The *Ptelin* is tonic and stimulant. It is a remedy of much value in diabetes, in chronic diarrhoea and indigestion. It should be triturated, ten parts to the hundred of sugar, and from five to ten grains given at a dose.

## RHUSIN.

The *Rhusin* is obtained from the *Rhus Glabra*. Common name, *Upland Sumach*. It is a valuable remedy in purpura, scurvy, and dysentery. It is also used with good effect, as an external remedy, in indolent ulcers and piles. For internal use it should be triturated as the other concentrated remedies, and from one to five grains of the trituration given at a dose. As an external remedy for ulcers or piles, it should be made into an ointment with Balsam of Fir.

## RUMIN.

The *Rumin* is obtained from the *Rumex Crispus*, or *Yellow Dock*. It is a remedy of great value in constitutional cancerous affections, and in scrofula. It should be triturated, and given in three or four grain doses.

## SANGUINARIN.

The *Sanguinarin* is obtained from the *Sanguinaria Canadensis*. Common name, *Blood Root*. The *Sanguinarin* is one of the most valuable remedies known, in the treatment of pseudo-membranous croup. It has proved as much of a specific for that disease, as quinine has for ague. I have seen it used in a great number of cases, and have never known a single failure. It is also used in pneumonia with good effect. As a mild alterative and sedative, it is also valuable. Externally, sanguinarin is used in open cancer with good effect. When used for the croup, it should be made into an acetic syrup, by adding twenty grains of sanguinarin to four ounces of vinegar; steep, and add one ounce of sugar to form a syrup. Dose, one teaspoonful as often as indicated. As an alterative and expectorant, it should be triturated ten grains to the hundred of sugar, and from three to five grains given at a dose. Externally, for cancer, it is mixed with the white of an egg, and applied in the form of a paste.

## SULPHATE OF SANGUINARINA.

The sulphate of sanguinarina is a valuable external application in syphilitic, cancerous, and other malignant diseases. It should be formed into an ointment by mixing it with lard. Internally, it may be used for the same purposes as the sanguinarin, only in much smaller quantity.

## SCUTELLARIN.

The *Scutellarin* is prepared from the *Scutellaria Lateriflora*, or *Scullcap*. It is one of the most valuable nerve tonics and antispasmodics. It is a specific in nervous chorea, and very valuable in all other forms of nervous affections. It is one of the ingredients of the intermittent drop. In the low stage of typhoid fever, it allays the nervous irritation with great efficiency. I am in the habit of using the scutellarin in all cases where I formerly used morphine. It should be triturated ten to the hundred, and given in three or four grain doses.

## SENECIN

Is obtained from the *Senecio Gracilis*. Common name, *Life Root*. The Senecin is one of the most efficient known remedies in irregularity of the menses, and appears to act specifically upon the uterus, relieving that organ of congestion and inaction. From the efficiency with which the medicine relieves uterine derangement, its use is mostly confined to that class of cases. The dose of the triturated is from three to six grains.

## STILLINGIN.

The *Stillingin* is a concentrated preparation, prepared from the root of the *Stillingia Sylvatica*. This preparation, however, does not contain all the active medical properties of the plant. Hence the crude article is mostly used in the form of a syrup. The syrup is extensively used in syphilis, scrofula, and mercurial diseases. By those who



are the most familiar with its medicinal properties, it is believed to possess more power over mercurial diseases than any other. In order to obtain the best effect, its use should be persisted in for a considerable length of time. Dose of the simple syrup, one teaspoonful three or four times a day. The stillingin is valuable in chronic bronchitis and diphtheria. Dose, one-half to one grain every two or three hours.

#### STRYCHNINE.

*Strychnine* is the active principle of the *Nux Vomica*, and possesses all the medicinal properties of that drug in a highly concentrated form. It appears to manifest its power principally upon the white nerve fibres, imparting tone and energy to that tissue, and facilitating the distribution of nerve power to all the organs and tissues of the body. Hence it is a remedy of great value in the treatment of all diseases connected with debility. In low forms of fever, scrofulous affections, and tuberculous diseases, where the nutritive functions are feeble, strychnine is most valuable. It is also a very valuable remedy in the treatment of gleet, spermatorrhœa, and a feeble state of the reproductive organs both of male and female. It is also valuable in many forms of palsy. Dose, from one-twentieth to one-sixteenth of a grain. It should be triturated as other concentrated remedies.

#### TRILLIN.

The *Trillin* is obtained from the root of the *Trillium Pendulum*. Common name, *Beth Root*. The trillin is astringent, styptic, alterative, and tonic. It is used in uterine hemorrhage, leucorrhœa, and prolapsus uteri. The trillin should be triturated, ten grains to the hundred of sugar, and from five to ten grains of the trituration is a dose.

## VERATRIN.

The *Veratrin* is obtained from the *Veratrum Viride*. Common name, *Swamp Hellebore*. It is sedative, diaphoretic, alterative, diuretic, and in large doses emeto-cathartic. There are but few remedies by which the heart's action can be so readily controlled as by this. Hence in all sthenic diseases, in which there is great increase of circulation, as in miasmatic fevers, the *veratrin* constitutes one of the most important remedies in use. In many cases of intermittent, remittent, and bilious fevers, the *veratrin* is the only remedy needed. It is also very valuable in the treatment of pneumonia, pleurisy, and bronchitis of a sthenic character. But where the powers of the system are feeble, and the disease of an asthenic character, the *veratrin* should not be given, as it proves too debilitating. A tincture made from the fresh root is also used in the same diseases as the *veratrin*. The *veratrin* should be triturated, ten grains to the hundred of sugar, and from one half to one grain of the trituration given as a dose. Dose of the tincture is from three to ten drops.

## VIBURNIN.

The *Viburnin* is obtained from the *Viburnum Oxycoccus*. Common name, *High Cranberry*. It is antiperiodic, tonic, and alterative. The *Viburnin* is a valuable remedy in the treatment of ague and remittent fever. It is also valuable in periodic pneumonia and pleuritis. While it arrests the periodicity of pneumonia, it also facilitates expectoration. This remedy has proved highly valuable in obviating the casualties of pregnancy. It is frequently prepared in the form of a syrup, and given under the name of "Mother's Relief." When given in the form of a syrup, it should be prepared by adding one dram to the pint of the syrup of sugar. Dose, one tablespoonful three times a day. Dose of the triturated, from three to ten grains.

## XANTHOXYLIN.

Obtained from the *Prickly Ash*. The Xanthoxylin is one of the most powerful diffusible stimulants known to the profession. When given in full doses, it produces effects upon the nerves as though slight shocks of electricity were passing through the system. From its powerful stimulating properties, it is used in all low forms of fever, in passive congestion, in cholera, diarrhœa, and dysentery. It is also a remedy of great value in congestive chills. It should be triturated, ten grains to the hundred of White Sugar, and from five to ten grains is a dose. A tincture is made of the Prickly Ash Berries, by adding an ounce of the berries to one pint of brandy. Dose, one teaspoonful as often as indicated. It is used in the same diseases as the Xanthoxylin.

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## CONCENTRATED AND ESSENTIAL TINCTURES.

The Concentrated Tinctures prepared by B. Keith & Co., of New York, and the Essential Tinctures prepared by Wm. S. Merrell, of Cincinnati, Ohio, are very reliable preparations, and represent the medical virtues of the plants from which they are prepared in a very convenient form. In many diseases they may be used instead of the concentrated remedies. A convenient method of using these tinctures in acute diseases, is to add to them a proper quantity of water, and allow a teaspoonful to be given as often as required.

OILS.—There are several medicines of this character, that have been prepared by our pharmacutists, of a most valuable character.

The Oil of Capsicum is a most powerful, diffusible stimulant, and may be given in all cases where such a remedy is required, in one or two drop doses.

The Oil of *Erigeron* is a remedy of much repute in hemoptysis and uterine hemorrhage. The dose is ten or fifteen drops, repeated every half hour.

The Oil of *Populus* is a valuable remedy in diseases of the bladder and urinary organs, in doses of five or ten drops, repeated as indicated.

The Oil of *Stillingia* is a valuable remedy in bronchitis, in one or two drop doses, triturated with sugar.

The Oil of *Solidago* is valuable in diseases of the kidneys and bladder. From three to five drops is a dose.

The Oil of *Xanthoxylum* is valuable in rheumatism, and where an active stimulant is required. Dose, two or three drops given in mucilage.

The Oil of *Lobelia* is a powerful anti-spasmodic, and valuable in epilepsy and other spasms. From one-half of a drop to one drop is a dose.

Oleo-Resin of *Lobelia* contains all the active principles of the plant, and is a most valuable emetic. Dose, from two to five grains.

In addition to the above remedies, Mr. Merrell has prepared the Muriate of Hydrastin, which is an invaluable remedy for ulcerated condition of the mucous membrane, in doses of from one to two grains; the Sulphate of Sanguinarina, a valuable external application for cancer, chancre, and indolent ulcers; and the Panduratin, a valuable remedy in phthisis, in doses of from three to five grains.

There are several other remedies that have recently been prepared, and are now being tested, which will appear in our next edition.

## HOW TO PREPARE AND USE CONCENTRATED MEDICINES.

The proper preparation of medicine has very much to do with its action on the living organism. We often hear physicians remark that concentrated medicines are worthless, when we have every reason to believe that their inefficiency is owing to the bungling manner in which they are prepared and administered. Most of the concentrated medicines are insoluble in water, and nearly all the menstrua used by physicians and nurses to administer them in. Besides a large number are comparatively insoluble in the stomach. The one who prescribes, not knowing this fact, condemns the article either as useless or spurious. Suppose the same individual should order boiled eggs for breakfast. The cook boils them thirty or forty minutes, brings them to the table, and they are eaten, but instead of proving nutritious, they irritate the stomach. Now, which ought to be condemned, the eggs, or the manner of cooking them? Every individual well knows, that however nutritious and well adapted to nourish the system an article of food may be in its crude state, unless it be properly cooked its purpose will not be accomplished. So with medicines. It is not enough that medicines be introduced into the stomach, but they must be so prepared that when they reach the stomach they pass into the circulation, and come in contact with such diseased tissues as are to be affected by them. It must farther be remembered that the powers of the stomach during disease are very much enfeebled, that the fluids are vitiated, and that the fact that there is loss of appetite, proves conclusively that the stomach is not in a condition to prepare either food or medicine for assimilation. This alone should be a sufficient hint to the physician to properly prepare his medicines before introducing them into the stomach.

To accomplish this, all the concentrated medicines should be thoroughly triturated.

The uniform method which I have adopted relative to the strength of the trituration, is to triturate ten grains of the crude article, in ninety parts of some of the following materials:—The oleo-resins should be triturated in glycerine. Solid remedies should be triturated either in sugar of milk, or pure white sugar. About five grains of the trituration is usually the strength of one, or one and a half grains of the crude article. Or, in other words, by rubbing, mixing, and subdividing the particles of medicine, they not only become more readily absorbed, passing into the blood, &c., through the system, and producing their impressions, but the more extensive the division of the various molecules of medicine, the more extensive will be their influence upon the system: not only is this the case, but in very many instances, resinoids, oleo-resins and other principles of concentrated remedies are so slightly soluble in the stomach, that if introduced in their crude state, hours and even days may elapse before they will reach the blood.

In the meantime the local effects are most injurious to the coats of the stomach. This being the case, it may be asked why use the concentrated articles when the crude medicines are already triturated and mixed, and are by infusion so readily diluted? The reasons are obvious. In the crude state in the majority of cases, the medical properties are mixed with substances which are actually injurious to the patient, while in other cases the stomach has no power to separate or digest the crude material, mixed as it is with woody fibre. It is enough to remember that the stomach is not a chemical laboratory for the purpose of manufacturing medicine any more than it is a cooking stove for preparing food to nourish and sustain the system; and we may claim, with as much propriety, that all our food should be taken in a crude state as our medicine. The very physician who objects to the use of concentrated medicines, is con-

stantly practising concentration in a crude way by steeping and boiling in water, tincturing in alcohol, &c. In past times this was the best method known. But when the science of organic chemistry has so much enlarged its resources, and placed in our reach so many facilities, it is folly to suppose that a tin cup, a pot, a hot stove, and an inexperienced operator can extract all the medical virtues from our numerous native plants, with as much exactness and reliability as the experienced chemist in his laboratory with his superior knowledge and skill. It may be argued that the concentrated medicines are not prepared in a reliable manner; but the same objection may be urged against the crude article, as it must be properly gathered, dried and preserved in order to retain its medical virtues. In triturating medicines, when sugar is used, each article should be rubbed for twenty or thirty minutes, then placed in a well corked vial, and marked triturated. If glycerine is used, the process should be continued until every particle of medicine is dissolved.



## CONCENTRATED MEDICINES.

*The following* is a list of the principal concentrated remedies, the amount to be given, the diseases for which they are nearly specifics, and the frequency with which the dose should be repeated until relief is obtained. The dose has reference to the triturated article.

TRIT. REMEDIES.	DISEASES THEY CURE.	DOSE.	REPETITION.
Ampelopsin.	Bronchitis, sore throat, and scrofula.	5 gr.	Every 2 or 3 hours.
Alnuin.	Indigestion and debility.	3 gr.	" 3 or 4 "
Apocynin.	Inflammation of the bladder.	1 gr.	" hour.
Asclepin.	Pleurisy, (Acute.)	3 gr.	" half hour.
Baptisin.	Prevents gangrene.	5 gr.	" "
Caulophyllin.	Excessive menstruation.	3 gr.	" 5 hours.
Cerasein.	Enlargement of the spleen and ague.	6 gr.	" 3 "
Chelonin.	Strengthens the stomach in debility.	2 gr.	" 3 "
Chimaphilin.	Enlarged lymphatic glands.	5 gr.	" 2 "
Oellinsonin.	Enlargement of the valves of the heart.	2 gr.	" 2 "
Cornin.	Debility of the bowels.	5 gr.	" 3 "
Corydalin.	Syphilis.	5 gr.	" 3 "
Cypripedin.	Nervousness.	1 gr.	" hour.
Dizitalin.	Palpitation of the heart.	$\frac{1}{2}$ gr.	" 5 hours.
Dioscorein.	Bilious colic.	6 gr.	" 10 minutes.
Euonymin.	Inactive liver and costiveness.	5 gr.	" 4 hours.
Euphorbin.	Nausea and vomiting.	1 gr.	" half hour.
Eupatorin Per.	Gravel.	3 gr.	" 2 hours.
Eupatorin Pur.	Rising of food, uterine debility and weakness.	2 gr.	" 3 hours.
Fraz rin.	Night sweats, dyspepsia and consumption.	5 gr.	" night.
Gelsemin.	Dysentery.	$\frac{1}{2}$ gr.	" half hour.
Geravin.	Excessive Menstruation.	1 gr.	" hour.
Hamamelin.	Hypertrophy of the heart, and leucorrhœa.	3 gr.	" 3 hours.
Helonin.	Loss of appetite.	3 gr.	" 5 hours.
Hydrastin.	Debility, a pure tonic.	2 gr.	" hour.
Hyoseyamin.	Vertigo and sick headache.	$\frac{1}{2}$ gr.	" 3 hours.
Irisin.	Mercurial diseases.	3 gr.	" 3 hours.
Jalapin.	Dropsy of the bowels.	10 gr.	" 6 hours.
Juzlandin.	Tetter and salt rheum.	2 gr.	" 6 hours.
Leptandrin.	Aphthæ of the mouth and stomach.	3 gr.	" 2 hours.
Lupulin.	Spermatorrhœa.	5 gr.	" 2 hours.
Lycopia.	Excessive expectoration of pus from the Bronchia.	3 gr.	" 2 hours.
Macrocin.	Leucorrhœa, rheumatism and eruptive diseases.	2 gr.	" 3 hours.
Menispermin.	Old adhesions in pleurisy.	3 gr.	" hour.
Myrcin.	Diarrhœa from weakness.	2 gr.	" hour.
Phytolaccin.	Syphilitic rheumatism.	1 gr.	" 2 hours.
Podophyllin.	Congested portal circulation.	2 gr.	" 3 hours.
Populin.	Nervous debility, and diseases of the bladder.	3 gr.	" 2 hours.
Prunin.	First stage of consumption.	5 gr.	" hour.
Rhusin.	Nursing sore mouth.	3 gr.	" 2 hours.
Rhumin.	Scrofula.	5 gr.	" 3 hours.
Sanguinarin.	Constipation, croup, and colds.	5 gr.	" 4 hours.
Scutellari.	St. Vitus' dance.	6 gr.	" 2 hours.
Senecin.	Female Irregularity.	5 gr.	" 3 hours.
Similacin.	Enlargement of heart.	3 gr.	" 2 hours.
Stillingin.	Obstinate scrofula.	5 gr.	" 4 hours.

TRIT. REMEDIES.	DISEASES THEY CURE.	DOSE.	REPETITION.
Strychnine.	Palsies and epilepsy.	$\frac{1}{4}$ gr.	Every hour.
Trillin.	Acute rheumatism.	2 gr.	" half hour.
Veratrin.	All forms of bilious fever.	$\frac{1}{8}$ gr.	" half hour.
Viburnin.	Epilepsy.	3 gr.	" 2 hours.
Xanthoxylin.	Powerful stimulant.	3 gr.	" half hour.
Santonine.	Worms of all kinds.	10 gr.	" 2 hours.
Emetine.	Emetic.	10 gr.	" 5 min.
Quinine.	All periodic diseases, ague, neuralgia, &c., &c.	5 gr.	" hour.
Colchicia.	All forms of dropsy.	1 gr.	" 6 hours.
Gossypia.	Emmenagogue and abortion.	10 gr.	" 2 hours.
Lactucin.	Wakefulness.	$\frac{1}{2}$ gr.	" half hour.

## TINCTURES CONCENTRATED AND ESSENTIAL.

REMEDIES.	DISEASES THEY CURE.	DOSE.	REPETITION.
Aconite.	Typhoid, and all forms of debilitating fevers.	$\frac{1}{2}$ to 1 drop.	Every half hour.
Arnica.	Bruises and soreness.	1 to 2 drops.	" hour.
Lobelia.	All spasms, asthma, and cholera.	1 to 2 drops.	" half hour.
Veratrum viride.	All inflammatory fevers, bronchitis, pneumonia, &c.	5 to 10 drops.	" 15 or 20 min.
Xanthoxylin.	Cholera infantum.	20 to 60 drops.	" 10 or 15 min.
Capsicum.	Fainting, and great prostration.	40 to 80 drops.	" 20 or 30 min.
Cannabis Indica.	Consumption.	60 to 100 drops.	" 4 or 5 hours.
Matico.	All cases of hemorrhage.	30 to 40 drops.	" half hour.
Oil Erigeron.	Uterine hemorrhage.	10 to 40 drops.	" 10 or 15 min.
Tincture of Ignatia Bean.	Tetanus, nervous spasms, &c.	1 to 5 drops.	" 2 or 3 hours.
Rhus Radicans.	Palsy, last stages of typhoid fever.	1 to 3 drops.	" 2 or 3 hours.
Gelseminum sempervirens.	All acute inflammatory diseases, and all fevers where the brain is not affected.	1 to 3 drops.	" half hour.
Oil of Capsicum.	Asphyxia, from drowning, chloroform, &c.	1 drop.	" 5 minutes.
" Cubebs.	Gleet.	5 drops.	Three times per day.
" Ergot.	Night sweats, and copious expectoration in consumption.	1 drop.	Every hour.
" Male Fern.	Tape Worm.	60 drops.	" hour.
" Lobelia.	Whooping cough, and infantile spasms.	$\frac{1}{4}$ to $\frac{1}{2}$ drop.	" hour.
" Black Pepper	Chronic ague.	5 drops.	Five times a day.
" Stillingia.	Bronchitis.	1 drop.	Every hour.
" Fire Weed.	Piles.	5 drops.	Four times a day.
Valerianate of Ammonia.	Neuralgia, and all nervous affections of the stomach.	1 to 2 drops.	3 or 4 times a day.
Valerian of Iron.	Nervousness where the blood is impoverished.	$\frac{1}{2}$ to 1 grain.	3 or 4 times a day.
Oil of Skunk Cabbage berries.	Whooping Cough.	1 to 3 drops.	Every hour or two.

All the oils should be triturated with sugar or gum Arabic, and the concentrated tinctures should be largely diluted with water.

Of all articles triturated in glycerine, one drop may be considered equal to one grain of the articles triturated in sugar or gum.

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## ALPHABETICAL ARRANGEMENT OF THE MATERIA MEDICA.

*Abelmoschus Esculentus*, (*Okra*.) The okra is used for poultices instead of slippery elm. The leaves and fruit are used.

*Abies Balsama*, (*Fir Balsam*.) Good for dyspepsia and chronic rheumatism. Dose, ten to fifteen drops. Used in Paine's mild zinc ointment.

*Abies Canadensis*, (*Hemlock spruce*.) The gum, oil, and pulv. bark, are the parts used. Dose of the oil, five to ten drops; of bark, ten to fifteen grains.

*Abies Excelsa*, (*Norway Spruce fir*.) The gum or Burgundy pitch may be used externally as strengthening plaster, in rheumatism, &c.

*Abies Larix*, (*Larch*.) This is Venice turpentine, and is used in plasters and liniments.

*Abies Nigra*, (*Double Spruce*.) A decoction of the boughs of this article is valuable for chronic inflammation of the bladder and kidneys.

*Abrus Precatorius*, (*Liquorice bush*, *Red bean*, *Love pea*.)

A decoction is good for disease of the bladder and kidneys.

*Abutilon Cordatum*, (*Yellow Mallow*, *Sida Abutilon* of L.) This is a native of Brazil. It is a species of the cotton plant; is used as a poultice in indolent ulcers, and possesses emmenagogue properties.

*Absynthium Officinale*, (*Artemisia Absynthium*, *Common Wormwood*.) It is anthelmintic and tonic—good in dyspepsia, &c.

*Acacia Arabica*, (*Acacia*,) (*Gum Arabic*.) One teaspoonful to a tumbler full of water makes an invaluable mucilage in typhoid fever.

*Acacia Catechu*. This is an active astringent gum, used in dysentery, hemorrhage, &c.

*Acalypha Virginica*, (*Mercury Weed*.) The tincture is used in Syphilis in ten or fifteen drop doses. It is reputed to be of great virtue.

*Acer Striatum*, (*Striped Maple*.) A strong infusion of this is regarded as a specific for hemoptysis and other hemorrhages.

*Acetum*, (*Vinegar*.) This is used extensively in acetic tinctures, and croup syrup.

*Achillea Millefolium*, (*Yarrow*.) An infusion of the herb is almost a specific for night sweats in consumption. One ounce to one pint of water. Dose, one half teacup-full three or four times a day.

*Achras Sapota*, (*Sapodil*.) It is said to be a valuable tonic and febrifuge.

*Acidum Aceticum*, (*Acetic Acid*.) One dram of this acid dissolved in one ounce of water, is valuable for secondary syphilis, given in ten or fifteen drop doses, three or four times a day.

*Acidum Aceticum*, (*Empyreumaticum*.)

*Acidum Benzoicum*, (*Benzoic Acid*.) Used in rheumatism and gout. Dose, one or two grains.

*Acidum Carbazoticum*, (*Carbazotic Acid*.) Used in dyspepsia, intermittent and remittent fever, and diseases of the liver. Dose, one-half grain, once or twice a day, in gum water.

*Acidum Chromicum*, (*Chromic Acid*.) Used in croup, bronchitis, and phthisis. It is also used as a painless caustic, in cancer, for which it is most valuable. Dose, inter-

nally from one-thirtieth to one-twentieth of a grain, in gum water.

*Acidum Citricum*, (*Citric Acid*.) It is used for rheumatism, prepared like lemonade, and drank freely. Also useful in scurvy.

*Acidum Fluoricum*, (*Fluoric Acid*.) Considered valuable in pulmonary diseases.

*Acidum Gallicum*, (*Gallic Acid*.) Used as an astringent, in three or four grain doses for Epistaxis, &c.

*Acidum Hydriodicum*, (*Hydriodic Acid*.) Used instead of iodine, in one or two drop doses.

*Acidum Hydrochloricum*, (*Hydrochloric Acid*, *Muriatic Acid*.) It is used as a caustic in cancer, &c. Also for night sweats, hectic fever, &c. Dose, from five to ten drops in sage tea, once or twice a day.

*Acidum Hydrocyanicum*, (*Hydrocyanic Acid*, *Prussic Acid*, *Cyano-hydric Acid*.) Used in the latter stages of typhus and typhoid fever. From one-half to two drops given in mucilage is a dose.

*Acidum Lacticum*, (*Lactic Acid*.) Used in dyspepsia. Dose one to two drachms in sweetened water. Also for triturating medicines.

*Acidum Muriaticum*, (*Muriatic Acid*.) See *Acidum Hydrochloricum*.

*Acidum Nitricum*, (*Nitric Acid*, *Aqua Fortis*.) Used in secondary syphilis, in one or two drop doses once or twice a day.

*Acidum Nitro-hydrochloricum*, (*Nitro-hydrochloric Acid*.) Used in dyspepsia. Dose, three or four drops, sufficiently diluted, three or four times a day.

*Acidum Oxalicum*, (*Oxalic Acid*.) Used externally for eruptive diseases.

*Acidum Phosphoricum Dilutum*, (*Diluted Phosphoric Acid*.) Is used in fever and neuralgia, in from ten to fifteen drop doses, two or three times a day.

*Acidum Sulphuricum*, (*Sulphuric Acid*, *Oil of Vitriol*.)

Used as a caustic in cancers. See cancer recipe in formula.

*Acidum Sulphuricum Aromaticum*, (*Elixir of Vitriol*.) Is used in debility of the stomach. Dose, from ten to twenty drops, given in a tea of hydrastis Canadensis.

*Acidum Tannicum*, (*Tannic Acid*, *Tannin*.) Used as an astringent. Also in diseases of the mucous membrane. Dose, four or five grains.

*Acidum Tartaricum*, (*Tartaric Acid*.) Used in scorbutus. It is also one of the ingredients of Seidlitz powders. Dose, one or two grains in sweetened water.

*Aconitum Napellus*, (*Monk's Hood*.) Common name, Monk's-hood. This is a European plant. The tincture of the leaves is the preparation mostly used by eclectic physicians, in doses of from one to five drops, repeated at intervals of from one-half hour to an hour. It is used in all fevers and inflammations of an asthenic character. It is an active diaphoretic and sedative to the circulation, and at the same time increases the nervous forces. There is no remedy known, which possesses greater power to arrest typhoid and kindred fevers in their incipient stages. In peritoneal inflammation, the tincture of Aconite is of the greatest importance, frequently controlling the disease in a very few hours. It may also be used in dysentery, erysipelas, cerebral congestion, croup, whooping cough, &c.

Much care should be observed in preparing the tincture, which should be made from the recently dried leaves, in proportion of two ounces of dried leaves to one pint of diluted alcohol. After standing fourteen days, it should be strained and bottled for use. The active principle of the plant is the aconitine, which may be used in all cases where the tincture is indicated. It should be triturated, one grain to ten of powdered sugar, and one grain of the trituration is a dose, repeated as indicated. The properties are the same as the tincture.

*Acorus Calamus*, (*Calamus*, *Sweet Flag*.) Used in flatulency.

*Actæa*. (*Actæa Alba*, *White Cohosh*.) Good in female weakness.

*Actæa Rubra*, (*Red Cohosh*.) Uterine tonic, and good in rheumatism.

*Actæa Spicata*, (*Baneberry*, *Herb Christopher*.) Active purgative, used in fevers and bilious affections.

*Actimeris*, (many species, all called formerly *Coreopsis Alternifolia*.) Dr. Eoff states that they cure the ringworm by rubbing with the leaves.

*Adeps*, (*Lard*.) One of the principal ingredients of ointments, and most *cod liver oil*.

*Adansonia Digitata*, (*Boabab*.) Indigenous to Africa; used by the natives in fevers.

*Adiantum Pedatum*, (*Maidenhair*.) A decoction is almost a specific for leucorrhœa, used freely, internally, and as an injection.

*Adicea Glaberrima*, (*Urtica pumila*.) (*Cool weed*.) Very common. A decoction is used in eruptive diseases.

*Æsculus Hippocastanum*, (*Horse Chestnut*.) A decoction of the leaves and bark is a valuable remedy in diseases of the kidney and bladder.

*Æther Hydrocyanicus*, (*Hydrocyanic Ether*.) Used in nervous affections as an external application.

*Æther Sulphuricus*, (*Sulphuric Ether*.) Used as an anti-spasmodic and an anæsthetic.

*Æthusa Cynapium*, (*Fool's Parsley*.) Used in dropsy and dysentery.

*Agaric*, (*Touchwood*, *Spunk*, *Tinder*.) Used as a styptic.

*Agaricus*, (*Punk*.) Useful to make the Agaric.

*Agave Virginica*, (*False Aloe*.) One of the principal ingredients of consumptive pill, and is very valuable in phthisis.

*Agnus Castus*, (*Chaste-tree*.) This remedy is said to be a valuable antaphrodisiac.

*Agrimonia Eupatoria*, (*Agrimony*.) Used in obstructed menstruation in the form of wine tincture.



*Ajuga Chamæpitys*, (*Ground Pine*.) A good diuretic.

*Alchemilla Alpina*, (*Ladies' Mantle*.) Equivalent to *Potentilla*. Also a diuretic.

*Aletris Aurea*, (*Yellow Aletris*.) Mix, add harsh bitter root, used in vinegar for dropsical fevers.

*Aletris Farinosa*, (*Star Grass*.) Is used in all female difficulties as a uterine tonic. Dose of the powdered root, from three to five grains.

*Alisma Odorata*, Raf. Fl. lud., (*Sweet Plantain*.) The whole plant odorous. Used for wounds and bruises.

*Alisma Plantago*, (*Water Plantain*.) This is used in a tea, as a remedy in hydrophobia and snake bites.

*Allium*, (*Wild Garlic, Landlauch*.) Several species. Used in croup and bronchitis in children.

*Allium Cepa*, (*Onion*.) Used as a poultice, and in the form of syrup in coughs.

*Allium Sativum*, (*Garlic*.) Used as a poultice instead of onions.

*Alnus Rubra*, (*Tag Alder*.) One of the best tonics in debility—may be used freely.

*Alnus Serrulata*, (*Black Alder*.) Stomach tonic and antiperiodic.

*Aloe Spicata*, (*Alocs*.) Used in the form of injection to remove seat worms. Ten grains to six ounces of water, used at bed time.

*Alpinia Cardamomum*, (*Cardamom*.) Used for children in colic.

*Alsine Media*, (*Chickweed*.) Anti-scorbutic and pectoral. May be eaten boiled for greens. Birds are fond of it.

*Althæa Officinalis* (*Marsh Mallow*.) One of the best mucilaginous diuretics in use. Dose, one teaspoonful pulv. root in half a tumbler of water, four or five times a day.

*Althæa Rosea*, (*Hollyhock*.) It is valuable in constipation and female diseases.

*Alumen*, (*Alum, Sulphate of Alumina and Potassa*.)

One or two grains at night, a useful remedy for incontinence of urine.

*Alumina*, (*Hydrated Oxyde of Alumen.*) Used as an external application in indolent ulcers.

*Amanita*, (*Mushrooms.*) With gills beneath, and a central support. Several are excellent for food. The best are *A. Muscaria*, *A. Deliciosa*, *A. Edulis*, *A. Campestris*, *A. Albella*, *A. Aurantiaca*, *A. Proserpina*, *A. Ovoidea*, &c.

*Amaranthus*, (*Amaranth, Princes' Feather.*) A decoction drunk freely—valuable in dysentery.

*Amaranthus Hypochondriacus*, (*Amaranth, Coxcomb.*) A decoction is good in dysentery.

*Amaryllis Atamasco*, (*Ground Lily, Stagger Grass.*) Said to poison horses and cattle, producing the disease called staggers. Beautiful vernal white blossom.

*Ambrosia Trifida*, (*Tall Ambrosia, Rag Weed.*) Used in prolapsus uteri and leucorrhœa. A strong decoction may be drunk freely.

*Ammonia*, (*Ammonia.*) Volatile stimulant. Dose, five or ten grains in water.

*Ammoniæ Hydrochloras*, (*Chlorohydrate, or Muriate of Ammonia.*) An alterative. Used for diseases of the liver. Dose, three or four grains.

*Ammoniæ Phosphas*, (*Phosphate of Ammonia.*) Good in nervous debility—from three to five grains a dose.

*Ammoniæ Hypophosphite*. Also valuable in syphilis, and in other diseases where there is great debility.

*Ammoniæ Spiritus Aromaticus*, (*Aromatic Spirit of Ammonia.*) A valuable stimulant, in ten or fifteen drop doses.

*Ammoniæ Carbonas*, (*Carbonate of Ammonia, Sesquicarbonate of Ammonia.*) A volatile stimulant and antacid. Dose, one or two grains in water.

*Ammoniacum*, (*Gum Ammoniac.*) Is used in syphilis and rheumatism. In four or five grain doses, two or three times a day.

*Ammonium Aceticum*, (*Acetate of Ammonia.*) Also a valuable stimulant.

*Ammonium Muriaticum*, (*Muriate of Ammonia.*) Used as an alterative, and to inhale in ozena.

*Ampelopsis Quinquefolia*, (*American Ivy.*) Is an invaluable remedy in scrofula. Used in the form of a syrup for scrofula.

*Amphicarpa Monoica*, (*Pea Vine.*) Good in diseases of the bowels and stomach.

*Amygdala Communis*, (*Almond Tree.*) Used as a tonic.

*Amygdalus Glabra*, (*Nectarine.*) Peculiar species, and not a variety of peach. Properties similar to peach, but much weaker. Rare with us.

*Amygdalus Persica*, (*Peach.*) Is used for weak stomach, in infusion—drank freely.

*Amylum*, (*Starch.*) Used as a nourishment, and for injections.

*Amyris Floridana*, (*Florida Balsam Tree.*) Properties similar to *maritima* and *A. Balsamifera*, of the West Indies. Used for weak eyes.

*Anacyclus Pyrethrum*, (*Pellitory of Spain.*) Used in rheumatism. Dose, twenty or thirty grains.

*Anagallis Arvensis*, (*Red Chickweed.*) Is said to be an antidote to hydrophobia. It cures epilepsy. Dose, one-half pint of the infusion often.

*Anagallis Phenicea*, (*Red Pimpernel.*) Used in scrofula and consumption.

*Anamirta*, (*Cocculus Indicus.*) In from one quarter to one half grain doses, it is said to cure epilepsy.

*Andira Inermis*, (*Cabbage Tree Bark.*) Is used in delirium tremens. Five to ten grains, a dose.

*Andromeda Nitida of Carolina*, (*Sour Wood, or Pipe-stem.*) Equivalent of *Kalmia*, for the itch.

*Andromeda Arborea*, (*Sorrel Tree.*) Is a diuretic. A decoction of the leaves may be drunk freely.

*Anemone Nemorosa*, (*Wood Anemone*, *Pulsatilla*.) One or two drops of the tincture is almost a specific for cutaneous erysipelas, given two or three times a day.

*Anemone Virginica*, (*Windbloom*.) Used in syphilis and eruptive diseases.

*Anethum Feniculum*, (*Fennel*.) Mild aromatic.

*Anethum*, (*Dill*, *Common Dill*.) Same as above.

*Angelica Atropurpurea*, (*Purple Angelica*, *Masterwort*.) A tea sweetened may be used instead of paregoric for children.

*Angelica Lucida*, (*Angelic root*, *Belly-ache root*, *Nendo* of the Virginian Indians. White Root of the Southern tribes. Valuable in pleurisy and fevers. A decoction may be drunk freely.

*Angustura Vera*, (*Angustura Bark*.) An alterative and stimulant, used in syrups.

*Antennaria Margaritaceum*, (*Pearl-Flowered Life Everlasting*.) A teaspoonful of the gin tincture given two or three times a day is valuable for asthma.

*Anthemis Cotula*.—English name, *Wild Chamomile*; French name, *Chamomile Puante*; German name is *Stinkende Kamille*. Official names, *Cotula*, *Camomila Spuria*. Vulgar names, *May Weed*, *Dog's Fennel*, *Dilly*, *Dilweed*, *Fieldweed*, &c. The May Weed may be used in all cases in which the official Chamomile is used. It is a valuable tonic in a feeble condition of the stomach, and a remedy of much value in leucorrhœa, prolapsus uteri, and other diseases dependent upon a feeble and lax condition of the mucous membrane. Dose, one ounce made into an infusion by adding one-half pint of boiling water, and drank ad libitum.

*Anthemis Nobilis*, (*Chamomile*, *Roman Chamomile*.) One of the very best tonics, used freely.

*Antimonium Crudum*, (*Crude Antimony*.) An irritant poison.

*Antimonium Tartaricum*, (*Tartar Emetic*.) Used as

an external application, in the form of an ointment instead of an irritating plaster.

*Apios Tuberosa*, (*Indian Potato, Potato Pea.*) Used in dropsical diseases.

*Apium Graveolens*, (*Cellery.*) An ointment made of the tops is said to be a cure for herpes.

*Apium Petroselinum*, (*Common Parsley.*) A valuable diuretic in the form of a decoction drank freely.

*Apocynum Androsæmifolium*, (*Bitter Root.*) An antidote to syphilis. Dose, five or ten grains of pulv. root, also a good diuretic.

*Apocynum Cannabinum*, (*Indian Hemp.*) Is a specific for neuralgia and lung affections. Used in tincture, infusion and extract. Dose of the tincture, from ten to twenty drops. Of the extract, one or two grains. Of the strong infusion, from a tablespoonful to a half teacupful, three or four times a day.

*Aquæ Calcis*, (*Lime Water.*) Valuable antacid; and used with equal parts of sweet oil for burns.

*Aqua Picis Liquidæ*, (*Tar Water.*) Drank freely is good for scrofulous and lung diseases.

*Aquilegia Canadensis*, (*Red Columbine.*) A good tonic.

*Arabis Rhomboides*, (*Meadow Cress, Equivalent of Water Cresses.*) The tuberous root edible as well as the leaves, similar to radishes, taste like Cochlearia.

*Aralia Hispanica*, (*Dwarf Elder.*) Valuable in dropsy, gravel, and diseases of the kidneys and bladder. Dose, ten or twelve grains, or a strong decoction may be drunk freely.

*Aralia nudicaulis*, (*Small Spikenard.*) Good purifier of the blood, used in the form of a syrup.

*Aralia spinosa*, (*Prickly Elder.*) An active stimulating alterative. Used in diarrhœa, cholera morbus, and cholera.

*Arbutus Uva-Ursi*. English name, Bear-Berry. Official name, Uva-Ursi. Vulgar names, Mountain Box, Red-

berry, Upland Cranberry. The *Uva Ursi* is a remedy, which manifests its power principally upon the kidneys. It increases the quantity of urine, and acts as a slight astringent to the urethral mucous membrane. The most convenient form of using the *uva ursi* is Merrell's Essential Tincture. Thirty drops three or four times a day, or an infusion may be drunk by adding one ounce to a pint of boiling water, to be used freely.

*Archangelica*, (*Lamium Album*.) An aromatic stimulant.

*Arctium Lappa*, (*Burdock*.) Used in the form of a syrup to purify the blood, used in the form of an infusion as a diuretic.

*Arethusa Bulbosa*, (*Bulbous Arethusa*.) The bruised bulbs useful for the tooth-ache, and in cataplasms for tumours.

*Argenti Chloridum*, (*Chloride of Silver*.) Used as a caustic.

*Argenti Cyanuretum*, (*Cyanide or Cyanuret of Silver*.) Also a caustic.

*Argenti Ammonia Chloridum*, (*Ammonio-Chloride of Silver*.) Used in one-sixteenth grain doses, in ulceration of the bowels.

*Argenti Nitras*, (*Nitrate of Silver, Lunar Caustic*.) Used as a caustic.

*Argenti Oxidum*, (*Oxide of Silver*.) Use the same.

*Argilla Pura*, (*Pure Argil or Alumina*.)

*Aristolochia Serpentina*, (*Virginia Snakeroot*.) Expectorant. Used in syrups. Is good in female and lung diseases.

*Armoracia Radix*, (*Horse-radish*.) An extract is a cure for chronic gonorrhœa. Also, good in rheumatism and gout.

*Arnica Montana*, (*Leopard's Bane*.) Ten or fifteen drops of the tincture in half a tumbler of water, and one

teaspoonful every two hours, good for sore mouth—also, for bruises, sores, &c.

*Aronia Ovalis*, (*Juneberry*, *Shadtree*, *Misascuta* of *Al-gic Tribe*.) A decoction is a good antiperiodic.

*Artemisia Absinthium*, (*Wormwood*.) The tincture is a tonic and vermifuge.

*Artemisia Vulgaris*, (*Mugwort*.) Antiseptic, stomachic, detergent, deobstruent, laxative, diuretic, diaphoretic, menagogue, corroborant, antispasmodic, and vermifuge. Useful in hysterics, spasms, palpitations of the heart, worms, obstructions, &c., in tea, infusion or powder.

*Arsenias Ammoniaë*, (*Arsenate of Ammonia*.) Used by some as an external application in cancer. Is a violent poison.

*Arsenice Iodidum*, (*Hydriodate of Arsenic*.) A violent poison, and should not be used internally.

*Arum Triphyllum*, (*Dragon Root*, or *Indian Turnip*.) One-half teaspoonful of the pulverized root, every night, is almost a specific for asthma. Also, good for coughs and colds, &c.

*Arum Esculentum*, (*Eddoes*, *Tanniers*.) Use same as above.

*Asarum Canadensis*, (*Wild Ginger*.) A strong infusion drank freely is almost a specific for dropsy of every variety.

*Asarum Europæum*, (*Asarabacca*.) The pulverized root is a valuable catarrh snuff.

*Asclepias Carnuti*, (*Common Silkweed*.) Mild diuretic. Strong infusion drank freely.

*Asclepias Incarnata*, (*Swamp Milkweed*.) Its properties very much resemble the *Cannabis Indica*, and may be used in all cases as a substitute. Dose of the extract, one or two grains. Tincture, twenty or thirty drops.

*Asclepias Tuberosa*, (*Pleurisy Root*.) A valuable diaphoretic. An infusion drank freely.



*Asimina Papaw*, (*Custard Apple*, *Asiminier* in *Louisiana*.) An antispasmodic, used in nervous affections.

*Asparagus Officinalis*, (*Asparagus*.) A tea of the roots is a valuable diuretic. One pint drank two or three times a day is a cure for dropsy.

*Aspidium Felix Mas*, (*Male Fern*.) A valuable remedy for tape-worm. Dose, twenty or thirty grains three or four times a day.

*Asplenium*, (*Spleenfern*.) Mild astringent, pectoral and corroborant, aperient and diuretic, useful for obstructions, gravel, syphilis, to clean the kidneys, hypochondria, &c., in decoction.

*Aster Puniceus*, (*Red-stalked Aster*.) A valuable remedy for leucorrhœa and prolapsus uteri. Dose, one tea-spoonful of the tincture, or one ounce of the infusion, two or three times a day.

*Atriplex Fœtidos*, (*Orach*, *A. Laciniata*.) Is refrigerant, watery, edible, similar and equivalent to Purslain. *A. Halimoides*, Raf., or Sea Orach, is similar—also, anodyne; useful in gout as a cataplasm, with starch.

*Atropa Belladonna*, (*Belladonna*.) Used as described under the head of various diseases.

*Auri Chloridum*, (*Chloride of Gold*.) Used in consumption—one-tenth to one-twelfth portion of a grain.

*Auri et Sodii Chloridum*, (*Hydrochlorate or Muriate of Gold*.) Used as an eye wash, and for indolent ulcers.

*Auri Iodidum*, (*Iodide or Ioduret of Gold*.) Used the same.

*Avena Sativa* (*Common Oats*.) Seeds nutritive, demulcent, refrigerant—equal to barley, in fevers, as a gruel.

*Azalea Procumbens*, (often called *Swamp Pink*, *Wild Honeysuckle*, *Springbloom*.) Good in dysentery; a decoction may be drank freely.

*Bacharis Halimifolia*, (*Groundsel tree*, *Pencil tree*.) It is a mild diuretic.

*Balota Lanata*, (*Leonurus Lanatus*.) Good in hysteria and nervous affections. A decoction may be drunk freely.

*Balsamodendrin Myrrha*, (*Myrrh*.) A valuable antiseptic. Dose, five to ten grains.

*Bambusa Arundinacea*, (*Bamboo cane*.) Young shoots are edible, boiled or pickled.

*Baptisia Tinctoria*, (*Wild Indigo*.) The most valuable antiseptic known. Used in poultices for gangrene and mortification.

*Barii Iodidum*, (*Iodide of Barium*.) Used in syphilis, rheumatism, &c., in one-fourth to one-half grain doses.

*Barosma Crenata*, (*Buchu*.) A mild diuretic in strong infusion, drank freely.

*Berberia*, (*Berberin*, *Berberis Canadensis*, *Berberis Vulgaris*.) A valuable antiperiodic and tonic.

*Benzoin Odoriferum*, (*Spicewood*.) A mild diaphoretic. Used as a beverage in fevers.

*Berberis Canadensis*. Other names, *Pepperidge bush* and *Sour-berry*. In the North the berries are pickled. A tea of the bark is used for indigestion, and an infusion in wine as purgative. The root and bark, with alum or lye, produce a beautiful yellow dye for leather and cloth.

*Berberis Vulgaris*, (*Barberry*.) Alterative, tonic and expectorant. Used in the form of a syrup, tincture and infusion. Dose, an ounce of tincture two or three times a day. Is said to be almost a specific for jaundice. One ounce of the syrup three or four times a day is a valuable tonic in lung disease.

*Beta Vulgaris*, (*Garden Beet*.) Leaves diluent, refrigerant—useful in sore eyes, headache, toothache, coryza, &c., applied on the parts; the best dressing for inflammations, &c.

*Betula Lenta*, (*Black Birch*.) A warm infusion drank freely. Is an invaluable remedy in diseases of the bladder. Also a good diuretic.

*Bidens Bipinnata*, (*Spanish Needles*.) A strong infusion is a valuable emmenagogue. One gill should be taken on retiring.

*Bignonia*, (Several species.) Also an emmenagogue and diuretic.

*Betrychium Virginicum*, (*Rattlesnake Ferns*.) Mild astringents.

*Bismuthi Valerianas*, (*Bismuthum Valerianicum*.) A valuable tonic in nervous affections.

*Bismuthum*, (*Nitrate of Bismuth*.) Used in about two grain doses for chronic dyspepsia.

*Botrophis*, (*Add*.) Used for rheumatic pains, diseases of languor, and scirrhus tumours, in tincture or decoction, by the Cherokees and Southern tribes.

*Brayera Anthelmintica*, (*Kausso*, *Casso*.) A good remedy for tape-worm. Dose, one or two drachms of the flowers, followed by a brisk purge.

*Brasenia Hydropeltis*. (English name, *Watershield*; Officinal name, *Gelatina aquatica*, *Brasenia*; Vulgar names *Frogleaf*, *Little Water Lily*, *Water Jelly*, *Deerfood*. Uses: Mucilaginous and demulcent tonic—may be used instead of Iceland moss, marsh mallow, and other mucilages. Cold infusion may be boiled into a jelly.

*Brassica Oleracea*, (*Cabbage*.) Well-known vegetable, healthy, antiscorbutic, pectoral when boiled, raw in cold-slaw, or pickled, in sourkrout, almost indigestible.

*Brassica Rapa*, (*Turnips*.) Nutritive, diluent, flatulent, aphrodisiac, diuretic.

*Bromelia Ananas*, (*Pine-apple*.) A delicious fruit, diuretic, menagogue and aphrodisiac.

*Bromus Purgans*, (*Broom Grass*, *Medical Grass*.) Sudorific, vermifuge, laxative, diuretic, &c.

*Brominum*, (*Bromine*.) A homœopathic remedy for most pulmonary diseases.

*Bryonia Alba*, (*Bryony*, *Zetter Berry*, *Wild Hops*.) Valuable in all granulated conditions of the mucous membrane.

*Bumelia*, (*Nigra*.) Bark of several species. Tonic and febrifuge.

*Buxus Sempervirens*, (*Box*.) A mild cathartic and al-

terative. Three or four grains of the pulverized wood may be taken every two or three hours. Used in syphilis and rheumatism.

*Cacalia*, (*Caraway*.) Many species. Good in flatulency.

*Cactus*. Almost all kinds have edible fruits, acid and grateful.

*Cadmii Sulphas*, (*Sulphate of Cadmium*.) Used in eruptive diseases. Twenty grains to one pint of compound syrup of stillingia.

*Calcaria Chlorata*, (*Chloride of Lime*.) Disinfectant.

*Calcaria Phosphorica*, (*Phosphate of Lime*.) Valuable in phthisis and diseases of the bones.

*Calendula Officinalis*, (*Garden Marygold*.) A good alterative in scrofulous and cancerous affections. Dose, one gill of the infusion—or it may be used in the form of syrup.

*Calla Palustris*, (*Swamp robin*.) Roots acrid and caustic like Arum, yet by drying, grinding, macerating and boiling, a fine meal and bread is made in Sweden, very palatable.

*Callithrice Verna*, (*Water Starwort*.) A good diuretic.

*Callicarpa Americana*, (*Sourbush*.) Leaves useful for dropsies in decoction,

*Calotropis Gigantea*, (*Mudar or Madar*.) Is an alterative and sudorific.

*Calycanthus Floridus*, (*Sweet Shrub, Allspice*.) Used as an aromatic.

*Campanula Glomerata*. Stated to be valued in Russia as efficacious in hydrophobia.

*Camphora*, (*Camphor*.) A one or two drop dose of the tincture repeated every five or ten minutes, is valuable in cholera morbus or cholera.

*Canella Alba*, (*Canella*.) A mild aromatic stimulant. Used in infusion.

*Cannabis Sativa or Cannabis Indica*, (*Hemp*.) A va-

luable remedy in all nervous affections. Used in delirium tremens, insanity, &c. Also in lung affections. Dose, from one to ten grains of the extract. Dose of tincture, from twenty to sixty drops. This remedy has been extensively vended as a quack nostrum to cure consumption. Experience has shown it to be of little value.

*Cantharis Vesicatoria*, (*Spanish Fly*.) Used in spermatorrhœa and leucorrhœa in very small doses.

*Caoutchouc*, (*Gum Elastic, India Rubber*.) An active astringent. Dose, two or three grains.

*Capraria Biflora*, (*Carib Tea*.) Astringent and tonic.

*Capsicum Annum*, (*Cayenne Pepper*.) Pure stimulant. May be used in all cases where stimulants are indicated. Dose, from one to ten grains.

*Carbo Animalis*, (*Animal Charcoal*.) Good preventive of mortification. Used in poultices.

*Carbo Ligni*, (*Charcoal*.) Good preventive of mortification. Used internally.

*Cardamine Pratensis*, (*Ladies' Smock*.) Equivalent of Nasturtium, but more diuretic, nervine and diaphoretic. Root said to be purgative.

*Carex, Crenaria*, (*Sedge*.) Edible, stomachic, diuretic. Equivalent of Sarsaparilla, Gayac, and Daetylon.

*Carica Papaya*, (*Papay*.) Milk of the unripe fruit, a fine vermifuge, one dose said to kill all worms, even the tapeworm. A dose of castor oil is taken next to expel them.

*Carlina Acaulis*, (*Ground Thistle*.) Bitter, aromatic, acrid, graveolent, sudorific and stomachic; useful in hysterics and hypochondria.

*Carthamus Tinctorius*, (*Dyer's Saffron*.) Emmenagogue. An infusion. May be used freely.

*Carum Carui*, (*Caraway*.) A mild aromatic.

*Caryophyllus Aromaticus*, (*Cloves*.) One of the ingredients of the anti-bilious physic.

*Cassia Acutifolia*, (*Senna*.) Five or ten grains is a purge. One of the components of the anti-bilious physic.

*Cassia Fistula*, (*Purging Cassia*.) One or two drachms acts as a purge.

*Cassia Marilandica*, (*American Senna*.) Mild cathartic.

*Cassine Peragua*, (*Ilex Vomitoria*.) Leaves bitterish, sudorific and diuretic, vomitive and purgative in strong decoctions called *black drink* by the Indians. Said to be useful in gravel, nephritis, diabetes, fevers and small pox.

*Castanea Pumilla*, (*Chestnut*.) A decoction of the leaves is an astringent and diuretic.

*Castoreum*, (*Castor*.) An antispasmodic. One teaspoonful of the tincture is a dose. Used in hysteria.

*Catalpa Cordata*, (*Catalpa or Cataba Tree*.) Leaves useful in cataplasms in parturition and nervous pains.

*Caulophyllum Thalictroides*, (*Blue Cohosh*.) Used in female diseases in the form of tea.

*Ceanothus Americanus*, (*Redroot*.) (*Jersey Tea*.) Alterative. A valuable remedy in chronic affections of the liver. Also in secondary syphilis. Dose, one tablespoonful of strong infusion four or five times a day.

*Celastrus Scandens*, (*False Bitter Sweet*.) Alterative and diuretic. Good in dropsical affections and scrofula. Dose, one or two tablespoonfuls of decoction two or three times a day.

*Celtis Crassifolia*, (*Nettle Tree, Hackberry in the West*.) (*Sugar Berry in the South*.) Berries useful in dysentery.

*Centaurea Benedicta*, (*Blessed Thistle*.) It is said to be a reliable remedy in epilepsy.

*Cephælis Ipecacuanha*, (*Ipecacuanha*.) Emetic in five or ten grain doses.

*Cephalanthus Occidentalis*, (*Button-bush*.) Febrifuge and diuretic. Used in gravel and fevers. One gill of infusion taken two or three times a day.

*Cera Alba*, (*White Wax*.) *Cera Flava*, (*Yellow Wax*.) Used in ointments.

*Cerasus Serotina*, (*Wild Cherry, Black Cherry, Choke Cherry*.) An anti-periodic, (see *Ceracein*.)

*Cerævisæ Fermentum*, (*Yeast*.) Good preventive of



mortification. Used internally and in the form of a poultice.

*Cesalpina Brasiliensis*, (*Brazil Wood*.) Blossoms are emmenagogue.

*Cetaceum*, (*Spermaceti*.) Good in coughs and colds. Sometimes used in consumption for cod liver oil, for which it is a very good substitute.

*Cetraria Islandica*, (*Iceland Moss*.) Good mucilage in coughs and colds, drank freely.

*Chamærops Palmetto*, (*Palm Tree*.) A decoction is good in lung diseases.

*Chara Hispida*, (*Water Feathers*.) Said to be antispasmodic and vermifuge.

*Cheirsinthus Cheiri*, (*Wallflower*. Called *Bitter Root* by the Indians.) Intensely bitter, used as a tonic.

*Chelidonium Majus*, (*Great Celandine*.) One of the ingredients of celandine ointment. Five or ten drops of the tincture four or five times a day, is a good remedy for piles.

*Chelone Glabra*, (*Balmoney*.) One of the best stomach tonics—promotes digestion and removes dyspepsia. Dose of an infusion of the leaves, one half tea-cup full three or four times a day.

*Chenopodium Anthelminticum*, (*Wormseed*.) A good remedy for worms. Three or four grains of the pulv. herb given at bed time.

*Cherophyllum Sativum*, (*Chervil*.) Cultivated condiment, stimulant, diuretic; root, leaves, seeds, oil, and extract used.

*Chimanthus Amygdalinus*, (*Winter Laurel*, *Laurier Amande* in Louisiana.) Used in constipation, dyspepsia, &c.

*Chimaphila Umbellata*, (*Pipsissewa*.) One of the best diuretics and antiseptics in materia medica. May be used in an infusion or syrup freely. Useful in all cases of debility, scrofula, consumption and cancerous affections.

*Chioceoca Racemosa*, (*Cahinca*.) This is used for syphilis and necrosis, or diseases of the bowels in twenty grain doses.



*Chionanthus Virginica*, (*Fringe Tree*.) A strong infusion drank freely through the day, is said to break up ague.

*Chloroformum*, (*Chloroform*.) Should only be used in form of a liniment, and anæsthetic.

*Chondrus Crispus*, (*Irish Moss*.) This may be used the same as Iceland Moss.

*Chrosperma*, (*Redseed*.) Equivalent to Abalon, a narcotic poison.

*Chrysanthemum Leucanthemum*, (*White weed, Daisy, Goldens*.) Used for wounds, asthma, phthisis and tænia.

*Chrysophyllum Buranheim*, (*Monesia Bark*.) A stimulant and tonic.

*Chrysosplenium Americanum*, (*Water Carpet*.) Succulent, acrid, substyptic, aperient, corroborant; used for coughs, asthma and abdominal diseases.

*Cichorium Intybus*, (*Succory*.) Used as a diuretic and tonic. Dose, one or two drachms of the infusion.

*Cimicifuga Racemosa*, (*Black Cohosh*.) Used in rheumatism and female diseases. Five or ten drops of the tinct. four or five times a day, is a valuable remedy in leucorrhœa.

*Cicuta Maculata*.—*American Hemlock*. Official name, *Cicuta Americana*. Vulgar names, Snake weed, Death of man, Water parsley, Poison root, Wild hemlock, Children's bane. This article is an active, narcotic poison; yet from one half to one grain doses of the pulverized leaves have been used for painful neuralgic affection. Also, Scirrhus and other tumours of a painful character have been benefited by an application of the *Cicuta* in the form of ointment and otherwise.

*Cinnamomum Zeylanicum*, (*Cinnamon*.) A tea of cinnamon is excellent to allay vomiting. Also, to arrest morning sickness in pregnancy. It is also used in dysentery.

*Cinchona*, (*Peruvian Bark*.) Antiperiodic and tonic.

*Circea Lutetiana*. Leaves useful in decoction and cataplasm for piles and condyloma.

*Cirsium Arvense*, (*Canada Thistle*.) The syrup is said to be valuable for skin diseases.

*Cissampelos Pareira*, (*Pareira Brava*, *Ice Vine*.) Diuretic and tonic.

*Cistus Canadensis*, (*Frostwort*, *Rock Rose*.) Used for curing serofula, in decoction and cataplasms.

*Citrullus Colocynthis*, (*Colocynth*, *Bitter Cucumber*.) An active hydragogue purge.

*Citrus Aurantium*, (*Orange*.) Orange peel is used as a tonic in debility.

*Citrus Limonum*, (*Lemon*)—*Citrus Acida*, (*Lime*.) May be used, in the form of a syrup, in scorbutic affections.

*Citrus Vulgaris*, (*Bitter Orange*, *Seville Orange*.)

*Cladrastis Tinctoria*, (*Ash*, *Fustic Tree*, *Yellow Locust*.) Anthelmintic.

*Claytonia*, (*Pigroot*.) Antiserofulous in cataplasms.

*Clematis Virginiana*, (*Virgin's Bower*.) One or two ounces of the infusion once or twice a day is valuable for impotency.

*Cleome Felina*. Used in India, bruised with milk and sugar, against epistaxis.

*Clinopodium*, (*Dog-mint*.) Equivalent of *Nepeta*, much weaker.

*Clintonia*. Leaves used by Algie Tribes as a plaster for bruises and old sores. Applied wet or bruised.

*Cnicus*, (*Thistles*.) Leaves of many hepatic—correct the bile in decoction or powder.

*Cnidium Canadensæ*, (*Wild Chervil*.) Mucilage and diuretic.

*Coccoloba Uvifera*, (*Seaside Grape*.) Fruit causes costiveness. Good for diarrhœa.

*Cocculus Palmatus*, (*Colombo*.) Used as a tonic in bitters.

*Coccus Cacti*, (*Cochineal*.) From one half to one grain two or three times a day, in the form of simple syrup, is good for whooping-cough.

*Cochlearia Armoracia*, (*Horseradish*.) A valuable remedy for gonorrhœa.

*Cochlearia Officinalis*, (*Scurvy Grass*.) Antiscorbutic, acrid, pungent, diuretic, and stimulant.

*Coffea Arabica*, (*Coffee*.) Used mostly as an antidote to opium. Two or three ounces of strong infusion should be given and repeated every ten or fifteen minutes.

*Colchicum Autumnale*, (*Colchicum*.) Used in rheumatism and as a diuretic.

*Collinsonia Canadensis*, (*Stoneroot*.) Ox balm. A tea of the leaves is an excellent diaphoretic in fevers. The pulv. root sprinkled upon cancers is said to be very beneficial.

*Collodion*, (*Ethereal Solution of Gun Cotton*.) Used for abraded surfaces.

*Colutea Aborescens*, (*Bladder Senna*.) Leaves purgative. Dose, one to three ounces in decoction.

*Comandra Umbellata*, (*Toad Flax*.) Used for fevers by the Algic Tribes.

*Commelina Angustifolia*, (*Dayflower*.) Root antifebrile. Leaves eaten by the Indians as greens—emollient, pectoral and anodyne.

*Comptonia Asplenifolia*, (*Sweet Fern*.) A reliable antiseptic and tonic. Used in all cases where there is a tendency to mortification. Dose, one or two ounces of the infusion three or four times a day. An infusion of the leaves is a valuable injection for leucorrhœa.

*Conium Maculatum*, (*Poison Hemlock*.) From one-fourth to one grain of the extract is used in epilepsy.

*Conocarpus Erecta*, (*Buttonbush*.) Root antisiphilitic in decoction.

*Convallaria Multiflora*, (*Giant Solomon's Seal*.) A de-

coction used freely is said to be valuable for coughs and colds.

*Convolvulus Panduratus*, (*Wild Potato, Man of the Ground.*) A syrup made of this article, taken in doses of half a wine-glass full three or four times a day is an invaluable remedy for consumption.

*Convolvulus Scammonia*, (*Scammony.*) An active purge. One of the ingredients of the compound cathartic pill.

*Conyza Camphorata*, (*Plowmanwort.*) Stimulant, antispasmodic, nervine.

*Copaifera Officinalis*, (*Officinal Copaiva Tree.*) A balsam of this is extensively used in gonorrhœa. From one half drachm to a drachm three or four times a day.

*Coptis Trifolia*, (*Goldthread.*) A wash made of this article is valuable for aphthæ, or sore mouth. It may also be taken internally for the same purpose.

*Corallina Officinalis*. Vermifuge and absorbent.

*Corollorhiza Odontorhiza*, (*Crawley.*) This operates specifically upon the superficial capillaries. It is one of the most reliable diaphoretics known. Dose, one or two grains of the pulverized root; or from ten to thirty drops of the tincture.

*Coriandrum Sativum*, (*Coriander.*) Carminative and tonic. Used in the form of a tea drank freely.

*Cornu Cervinæ Ustum*, (*Burned Deer's Horn.*) One or two grains of this is said to be a specific for uterine hemorrhage.

*Cornus Circinata*, (*Round-leaved Dogwood.*) A strong antiperiodic. It may be used instead of quinine. Dose, a gill of the infusion three or four times a day.

*Cornus Florida*, (*Dogwood.*) Is used in all cases as a substitute for Peruvian bark. The flowers, tinctured in gin, are valuable for leucorrhœa.

*Cornus Sericea*, (*Swamp Dogwood.*) One or two ounces of the infusion is an invaluable remedy for dyspepsia.

*Corydalis Formosa*, (*Turkey Pea*.) One of the ingredients of the compound syrup of stillingia. It is a valuable remedy in syphilis. Dose, two or three grains of the pulverized two or three times a day.

*Corylus Americana*, (*Hazelnut, Filbert*.) Good fruit, giving relief in nephritis.

*Corypha Gebanga*. The stem is an inferior sort of sago. Root slightly astringent and emollient, used in bowel complaints.

*Crategus*, (*Hawthorn, Thorn Trees*.) Many species. Fruits of several make fine stomachic preserves, useful for diarrhoea, and anti-emetic; such as *Cr. Coccinea*, *Cr. tomentosa*, *Cr. crusgalli*. Leaves and flowers of the last used as a pectoral in coughs, and in whooping-cough as a tea.

*Creasotum*, (*Creasote*.) A valuable antiseptic. Dose, from one-half to two drops. It is used in all cases of great debility, and where there is a tendency to gangrene and mortification.

*Creta Preparata*, (*Prepared Chalk*.) Used as an antacid. Dose, three or four grains.

*Crinum Americanum*, (*Louisiana Squill*.) Used as an expectorant.

*Crocus Sativus*, (*Saffron*.) Dose, from five to ten grains. Used mostly as an emmenagogue.

*Croton*. *Cr. Eleutheria*, *Cr. Casearia*, *Cr. Odorifera*, and *Cr. Balsamifera*. Bark aromatic, fragrant, smoke musky, taste pungent, bitter. Contains resin, volatile oil, mucilage, and a bitter principle. Tonic, carminative, stimulant, pectoral, expectorant, &c., useful in dyspepsia, asthma, fevers, measles, flatulent colic, diarrhoea, &c.

*Cucumis Colocynthus*, (*Colocynth*.) Dose, from three to five grains. An irritant purge.

*Cucubalus Behen*, (*Campion Pink, Sea Pink*.) Root anthelmintic, emetic in large doses.

*Cucurbita Citrullus*, (*Watermelon*), *Cucurbita Pepo*,

(*Pumpkin*.) The seed is the part principally used. See treatment for tapeworm.

*Cubeba*, (*Cubebs*.) Diuretic and astringent. Used in chronic gonorrhœa. Dose, ten grains.

*Cunila Mariana*, (*Dittany*.) Nervine tincture. Used freely is a valuable remedy for consumption. Dose, one wine-glassful three times a day.

*Cupressus Thyoides*, (*White Cedar*.) Infusion of the wood stomachic.

*Cupri Sulphas*, (*Sulphate of Copper*), (*Blue Vitriol*.) Used as a caustic in cancer. Also one of the components of the hair tonic.

*Cureuma Longa*, (*Turmeric*.) Used in tincture. One or two teaspoonfuls a dose.

*Guscuta Americana*, (*Dodder*, *Devil's Gut*.) Bitterish, sub-astringent, stomachic, febrifuge, anti-scorfulous; useful in decoction for agues and scrofula.

*Cycadacea Revoluta* affords a kind of sago. The *C. Inermis* has much the same properties.

*Cydonia Vulgaris*, (*Quince*.) A syrup made of the fruit is a specific for land and sea scurvy. The seeds are valuable for gonorrhœa.

*Cynanchum Acutum*. Used as a drastic purgative. It acts violently on the bowels, and causes much pain.

*Cynara Scolymus*, (*Garden Artichoke*.) A syrup of this article has been known to cure dropsy of the heart.

*Cynodon Dactylon*, (*Dog's Grass*, *Bermuda Grass*.) Much used in Europe in decoction, to cool and purify the system.

*Cynoglossum Officinale*, (*Hound's Tongue*.) A strong infusion of this will arrest hemorrhage. It is also used in dysentery.

*Cyperus*, (*Bullrush*.) Roots edible, sudorific, diuretic; useful after fevers.

*Cypripedium Luteum*. The flowers of this fine genus

are favourites with the Indian women to deck their hair. I have been informed that in Onondaga, and other western counties of New York, several physicians rely upon a decoction of the roots of *C. Spetubile* as a valuable antispasmodic, which proves an effectual remedy in many cases when the common medicines have failed. Dose, a tablespoonful of the decoction, made by two ounces of the root in a pint of water.

*Cypripedium Pubescens*, (*Yellow Lady's Slipper*.) Nerve. A tea of this drunk freely will cure nervous headache. Used in all cases of nervous affections. Dose, one-half gill of infusion three or four times a day.

*Cytisus Scoparius*, (*Common Broom*.) The fresh tops and seeds made into a strong tea, is a reliable remedy in all dropsical affections. Dose, one-half pint three or four times a day.

*Datura Stramonium*, (*Stramonium*.) The extract and tincture are used mostly in epilepsy and nervous affections. Dose, one-fourth of a grain of the extract, and three or four drops of the tincture. It is also used in ointments.

*Daucus Carota*, (*Wild Carrot*.) This is used in infusion for gravel. Dose, a tablespoonful three or four times a day.

*Delphinium*, (*Larkspur*.) Many genera blended here. *Staphisagria*, *Consolida*, *Ajaxia*, *Plectromis*. Used in diseases of the urino-genital organs.

*Dendropogon Usneoides*, (*Spanish Moss*.) Used in sudorific baths. The infusion is pectoral in catarrh, asthma, &c.

*Dianthus Caryophyllus*, (*Clove Pink*, *Carnation*.) Fragrant flowers, cordial, sudorific, alexitere; used in potions, conserves, and to give a pleasant flavour and colour to medical syrups, &c.

*Diclythra*, (*Colic Weed*, *Dutchman's Breeches*.) Root used for tumours; when eaten, gives the colic; the decoction purifies the blood.



*Dicrvillea Canadensis*, (*Bush Honeysuckle*.) Diuretic, astringent, and alterative. Dose of the infusion, one gill, three or four times a day.

*Digitalis Purpurea*, (*Foxglove*.) Used in dropsy, and as a sedative in diseases of the heart. Dose of the tincture, from twenty to thirty drops. Of the powder, from one to two grains.

*Dionœa Muscipula*, (*Venus' Flytrap*.) Irritable, equivalent of *Diosera*.

*Dioscorea Villosa*, (*Wild Yam*.) A specific for bilious colic. Also good in neuralgia. Dose, one tablespoonful of the decoction every ten or fifteen minutes.

*Diosma Crenata*, (*Buchu Leaves*.) Good diuretic, in infusion, drank freely.

*Diospyros Virginiana*, (*Persimmon*.) The bark of the tree is highly recommended for tapeworm. Dose of the infusion, one gill, three or four times a day. A tea of the fruit is used as a laxative.

*Dipsacus*, (*Tcazel*.) Root tonic, aperient; water held by the leaves deemed cosmetic.

*Dipteracœ* affords a kind of camphor. The *Vateria Indica* furnishes the East Indian Copal, or Gum Anim.

*Dirca Palustris*, (*Leatherwood*.) A tincture of this is used as a liniment in rheumatism. Five or ten drops internally, is also a good remedy for chronic rheumatism.

*Dolichos Lacteus*, (*Cowage, Cow-Itch*.) *D. Lacteus* has yellow edible seeds, depurative and anodyne.

*Dorema Ammoniacum*, (*Gum Ammoniac*.) Good in rheumatism, gout, and syphilis. Dose, one to three grains.

*Dorstenia Contrayerva*, (*Contrayerva*.) It is a stimulant and diaphoretic. Dose in powder, thirty grains.

*Drosera Rotundifolia*, (*Sundew*.) Deemed pectoral in South America; a syrup used for asthma.

*Drimys Winteri*, (*Winter's Bark*.) Used in typhoid and typhus fever. From ten to twenty grains of the pulverized bark is a dose.

*Echium Vulgare*, (*Blue Thistle*.) Equivalent of Borrago, pectoral, depurative, antiepileptic.

*Eclipta*. *E. ciliata* is poisonous, smelling like Cicuta, with a very acrid taste.

*Electro-Punctura*, or *Galvano-Puncture*. Used in some cases of palsy.

*Epigæa Repens*, (*Trailing Arbutus*.) (*Mountain Pink* or *May Flower*.) Lithontriptic and diuretic. Dose, one gill of the infusion two or three times a day.

*Epilobium*, (*Indian Pink*.) Diaphoretic and diuretic in decoction.

*Epilobium Angustifolium*, (*Willow Herb*.) An astringent, demulcent and tonic. Dose, a tablespoonful of the infusion every hour.

*Epispasticus* or *Vesicants*.

*Equisetum Hyemale*, (*Scouring Rush*.) Diuretic and alterative. Used in scrofula. Dose, two or three ounces of the infusion.

*Erechthites Hieracifolius*, (*Fireweed*.) The oil is a specific for piles. Made into an ointment, and applied externally, and four or five drops taken internally. It is also used in typhoid fever, dysentery, and asthma.

*Ergot*, (*Spurred* or *Smut Rye*.) Used in five or ten grain doses as a parturient.

*Erigeron Canadense*, (*Canada Fleabane*.) The herb is used in infusion in dysentery. The oil is a specific for uterine hemorrhage. Dose, from five to twenty drops.

*Erigeron Heterophyllum*, (*Various Leaved Fleabane*.)  
*Erigeron Philadelphicum*, (*Philadelphia Fleabane*.) Properties same as the above.

*Eriophorum*, (*Cotton Grass*.) Emenagogue and diuretic.

*Eryngium Aquaticum*, (*Water Eryngo*.) Diuretic, stimulant, diaphoretic, and alterative; used in syphilis. Dose from twenty to thirty grains of the pulv. herb.

*Erysimum Officinale*, (*Hedge Mustard*,) astringent. Diuretic, used for asthma, cough, ischuria. The *E. alliaria* is detersive, aperient, incisive and attenuant, used in dysentery and hysterics.

*Erythroxylon Luberosem*. An aromatic stimulant. Dose, from one to three grains of the pulv. bark, also used in tincture.

*Erythrina Herbacea*, (*Coral Bloom*.) Roots sudorific, flowers pectoral.

*Erythronium Americanum*, (*Adder's Tongue*.) Used in chronic dyspepsia. It makes a cooling and emulcient drink in fevers. A decoction may be used freely.

*Esopon Glaucum*. Equivalent of Chicorea.

*Eulistemon*, (*Pepper Grass*.) A mild tonic, astringent, diuretic.

*Eugenia*, *Pimenta*, (*Pimento*, *Allspice*, *Jamaica Pepper*, *Bayberry Tree*.) An aromatic and stimulant in two or three grain doses.

*Euonymus Atropurpureus*, (*Wahoo*.) An ounce of bark in a quart of gin, and a tablespoonful taken three or four times a day, is one of the best remedies for chronic affection of the liver. A decoction of the bark may be used where a mild alterative and cathartic is indicated.

*Eupatorium Aromaticum*, (*White Snakeroot*.) A decoction is used in hysteria. Dose, one-half teacupful three or four times a day.

*Eupatorium Perfoliatum*, (*Boneset*.) A cold infusion taken in half teacupful doses three or four times a day, is an excellent remedy for bilious affections, weakness of the stomach, chronic derangement of the bowels, &c. A warm decoction operates as an emetic and mild purge.

*Eupatorium Purpureum*, (*Queen of the Meadow*.) Used in gravel, leucorrhœa, and prolapsus uteri. Dose of the strong decoction one-half teacupful three or four times a day.

*Eupatorium Teucrifolium*, (*Wild Horehound*.) Antiperiodic and alterative. A gin-tincture of this article is valuable in chronic ague.

*Euphorbia Corallata* (*Large Flowering Spurge*.) Emetic, diaphoretic, and purgative. From eight to ten grains is a dose of the pulv. root.

*Euphorbia Hypericifolia* (*Large Spotted Spurge*.) Astringent and anodyne. Used in infusion. One ounce taken every two or three hours to allay pain and nervousness.

*Euphorbia Ipeacuanha* (*American Ipeacuanha*.) Emetic, and operates in about the same doses as the English ipecac.

*Euphorbium Officinale*, (*Wolf's Bane*.) Emeto-cathartic in dram doses.

*Eufrasia Officinalis*, (*Eyebright*.) One pint of a strong infusion taken three or four times a day, is a cure for epilepsy.

*Euonymus Atropurpureus*, (*Spindlebush, Wahoo*.)—Leaves pectoral, fruits emetic, decoction or powder equivalent of *Sabadilla* and *Staphisagria* for the itch and destroying vermin. Also good alterative for the liver, in five or ten grain doses of the pulverized bark.

*Fedia Radiata*, (*Lamb, Lettuce, Corn Salad*.) Deemed diuretic and useful for hypochondria.

*Fel Bovinum*, (*Ox or Beef's Gall*.) Beef's gall and vinegar, used externally to bathe the neck, is almost a sure cure for quinsy.

*Ferri et Pulvis*, (*Iron by Hydrogen*.) Good Tonic.

*Ferrum*, (*Iron*.) The different preparations are used in all cases where there is lack of iron in the blood. The phosphate, pyro-phosphate, iodate, acetate, and muriate tincture, are among the best preparations used. Dose of the phosphates and carbonates, from one to five grains; of muriate tincture, from three to ten drops.

*Ferula Assafoetida*, (*Assafoetida*.) Anti-spasmodic and laxative.

*Filinguis*, (*Hart's Tongue*.) Astringent ointment made with oil for burns and piles; in tea for diarrhœa and dysentery.

*Filices*, (*Ferns*.) All fragrant kinds pectoral, anthelmintic, often edible.

*Fœniculum Vulgare*, (*Fennel*.) A tea is good for wind colic.

*Fragaria Vesca*, (*Strawberry*.) Anti-periodic, antiseptic and diuretic. From one-half ounce to an ounce of the pulv. root given between the paroxysms of ague, will usually prevent the return. A gin tincture of the root is almost a sure preventive against renewed attacks. Take in doses of one wineglassful three or four times a day. I have used all portions of the plant and root in obstinate and inveterate cases of ague, and find it equally reliable with cinchona or any of its preparations. Of the infusion, one or two pints should be taken during the intervals of the paroxysms. An extract may be made of the top and root, and administered in the form of a pill. Dose, a three grain pill every two hours during the interval of ague.

*Frasera Carolinensis*, (*American Columbo*.) Mild tonic and alterative. Used mostly in the form of bitters.

*Fraxinus Acuminata*, (*White Ash*.) The extract is used mostly for eruptive diseases, in the form of ointment. A syrup is used internally in the same disease.

*Fraxinus Sambucifolia*, (*Black Ash*.) A decoction is good in scrofulous diseases.

*Fucus Helmintho-Corton*, (*Corsican Moss*.) Used in tea for gravel, &c.

*Fuligo Ligni*, (*Soot*.) Used as an antacid.

*Fumaria Officinalis*, (*Fumitory*.) Tonic and alterative. Used in jaundice.

*Galardia Amara*. Equivalent of *Anthemis Nob.*

*Galax Rotundifolia*, (*Carpenter's Leaf*.) A good expectorant in lung diseases.

*Galbanum*, (*Galbanum*.) The gum resin of an unknown plant. The extract is used as an irritating plaster.

*Galeopsis Grandiflora*. Sold under the name of Blankenheimer Tea.

*Galipea Officinalis*, (*Angustura*.) The bark is warming, diaphoretic and tonic. Used in the form of bitters.

*Galium Aparine*, (*Cleavers*.) A valuable diuretic. Used in all cases in diseases of the kidneys or bladder. Dose, a tea-cupful of infusion two or three times a day.

*Galium Verum*, (*Common Cleavers*, *Bedstraw*, *Cleaverwort*, *Goose Grass*, *Clabbergrass*, *Milk Sweet*, *Poor Robin*, *Gravel Grass*.) Good in dropsy and diseases of the bladder.

*Gambogia*, (*Gamboge*.) The gum resin of an uncertain plant. An irritant purge seldom used by Eclectics.

*Gaultheria Procumbens*, (*Winter Green*.) Used in syrups to purify the blood.

*Gautiera Repens*, (*Mountain Tea*.) Official name, *Gaultheria*. Vulgar names, *Partridgeberry*, *Grouseberry*, *Deerberry*, *Spiceberry*, *Teaberry*, *Redberry*, *Wintergreen*, *Redberry tea*, *Mountain tea*, *Groundberry*, *Ground Ivy*, *Groundholly*, *Hillberry*, *Boxberry*, *Chequerberry*, &c. Synonyms, *Gaultheria*, or *Gaultheria Procumbens* of many Botanists, &c. Used as a diuretic and to purify the blood. Dose, ad-quantum.

*Gastrum Actigea*, (*Ground Star*.) Dust inside styptic, absorbent, ophthalmic, gastritic, &c.

*Gelseminum Sempervirens*, (*Yellow Jessamine*.) Used as an antidote to dysentery and fevers.

*Genista Tinctoria*, (*Dyer's Broom*, *Greenwood*, *Woodwaxen*.) An active diuretic.

*Gentiana Catesbei*, (*Catesbian Gentian*.) Official name, *Gentiana Catesbina*. Vulgar names, *Blue Gentian*, *Southern Gentian*, *Bluebells*, *Bitter-root*.

*Gentiana Chirayta*, (*Chiretta*.) Tonic, made in the form of bitters.



*Gentiana Lutea*, (*Gentian.*) A good tonic. Ten or twenty grains of the pulv. root, or an ounce of the tincture, may be taken three or four times.

*Gentiana Ochroleuca*, (*Ochroleucus Gentian*, *Samson's Snake Root.*) Dr. R. Johnson, of Ohio, regards this as almost a specific for prolapsus uteri. Dose, from five to ten grains, two or three times a day, of the powdered root.

*Geranium Maculatum*, (*Geranium.*) Active astringent, used in dysentery and hemorrhage. Dose, from five to ten grains of the powdered root.

*Gerardia Pedicularia*, (*Bushy Gerardia.*)

*Gerardia Quercifolia*, (*Golden Oak.*) Astringent, used in dysentery.

*Geum Rivale*, *Water Avens*, *Geum Virginianum*, (*White Avens.*) Mild tonic and diuretic. Dose of the powder, from twenty to thirty grains.

*Gillennia Trifoliata*, (*Indian Physic.*) A mild hepatic purge. Dose, from twenty to thirty grains.

*Glandula*, (*Wild Senna*, *American Senna*, &c.) A cathartic, acting nearly the same as the India, and Alexandria. Dose one-half dram to a dram of the powdered leaves.

*Glechoma Hederacea*, (*Ground Ivy*, *Alehoof*, *Robin runaway.*) A tea is good for the whooping cough.

*Gleditschia Triacanthus*, (*Honey Locust.*) Equivalent of the Ceratonia.

*Glycerina*, (*Glycerin.*) Used externally as a liniment; also used for the purpose of dissolving medicines, and may be taken internally to fulfil the indications of cod-liver oil. Dose, one teaspoonful two or three times a day.

*Glycyrrhiza Glabra*, (*Liquorice.*) A tea is good for colds and coughs: may be used freely.

*Gnaphalium Polycephalum*, (*White Balsam.*) A pint of strong infusion taken in doses of one-half pint, two or three



times a day, is an excellent remedy for females during the change of life.

*Gonolobus Hirsutis*, (*Negro Vine*.) Root drastic, acting on the bowels like *Colocynth*.

*Gonothea Helianthoides*, (*Melon Apple Flower*.) Root tuberous, fragrant, nervine; Equivalent of *Polymnia*.

*Goodyera Pubescens*, (*Net-leaf Plantain*.) Used in scrofula in the form of syrup.

*Gardonia Lasianthus*, (*Swamp Laurel*.) An alterative used in eruptive diseases.

*Gossypium Herbaceum*, (*Cotton*.) Is an emmenagogue and parturient. It is used in suppressed menstruation, &c.

*Guaco*, (*Huaco*.) Tonic, stimulant and diuretic.

*Guaiaci Resina*, (*Guaiac Resin*.) Used in rheumatism and diseases of the kidneys and bowels. One to two grains a dose.

*Guaiacum Officinale*, (*Guaiacum*.) Is used in tincture for rheumatism. Dose, one-half to one teaspoonful three or four times a day.

*Gunpowder*, (*Pulvis, Pyrius, Pulvis Nitratus*.) Used in poultices for felons.

*Gutta Percha*, (*Gutta Percha*.) Concrete juice of *islandra gutta*. Dissolved in chloroform, is an application for acute erysipelas. One ounce of gutta percha to four ounces of chloroform.

*Gynema Balsamica*, (*Baume des Sauvages of Louisiana*.) A powerful stomachic and sudorific, used like tea.

*Habenaria*. Equivalent of *Orchis*.

*Hæmatoxylon Campechianum*, (*Logwood*.) The tincture is an abortant. Dose, wineglassful two or three times a day.

*Hæmospasis*, (*Dry Cupping*.) Used in internal inflammation.

*Hamamelis Virginica*, (*Witch Hazel*.) Five or ten grains of the pulverized flowers, taken previous to the

monthly period, will induce catamenia. An injection of the decoction of the leaves is also used for leucorrhœa.

*Hamiltonia Olœifera*, (*Oil Nut*.) An ointment made of this is said to be a sure cure for piles.

*Hedeoma Pulegioides*, (*Pennyroyal*.) A tea drank freely will produce perspiration.

*Hedera Helix*, (*Ivy*.) An ointment of the leaves is valuable for eruptive diseases.

*Helenium Autumnale*, (*Sneezewort*.) A powder used as a snuff, is good for catarrh in the head.

*Helianthum Canadensis*, (*Frost Weed*.) An excellent remedy for scrofula. Used in form of a syrup.

*Helianthus Annus*, (*Sunflower*.) The seed tinctured in gin, is an excellent remedy for coughs—good in consumption.

*Helichroa*. Several species called *Rudbickia Purpurea*. (*Red Sunflower*.) A syrup made of the flowers is an excellent remedy for bronchitis and lung affections.

*Helicteres Isora*. Root bitterish, used for ulcers, exanthems and whitlows.

*Helleborus*. Acrid, nauseous, purgative, emetic, vermifuge.

*Helonias Ballata*. Decoction of the peeled root, used in New Jersey for colics, &c.

*Helonias Dioica*, (*Helonias or Unicorn Root*.) Tonic, diuretic, and vermifuge. Dose, of pulverized root, ten or fifteen grains. Also a specific for impotency—one tablespoonful of gin tincture four or five times a day.

*Hemidesmus Indicus*, (*Indian Sarsaparilla*.) Is said to be an antidote to syphilis, and is used in scrofula. Dose of infusion, wine glassful three or four times a day.

*Hepatica Americana*, (*Kidney Liver Leaf*.) A strong infusion drank freely is useful in chronic affections of the liver.

*Hepatica Acutiloba*, (*Heart Liver Leaf*.) Used in hepatic affections. An infusion may be drunk freely.

*Hepatica Triloba*, (*Common Liverwort*.) Official name, *Hepatica*. Vulgar names, *Liverweed*, *Trefoil*, *Noble Liverwort*. Synonym—*Anemone Hepatica*, &c.

*Heptallon Graveolens*, (*Hogwort, Bear's fright*.) A decoction boiled in milk and used freely, is good for diarrhœa. It is also used for leucorrhœa and prolapsus uteri.

*Heracleum Lanatum*, (*Masterwort*.) Good for cough syrup. Dose, a tablespoonful once in two or three hours.

*Heuchera Acerifolia*, (*Maple-leaf, Alum-root*.) Official name, *Heuchera radix*. Vulgar names, *Alumroot*, *Sanicle*, *Ground Maple*, *Cliffweed*, *Splitrock*, &c.

*Heuchera Americana*, (*Alum Root*.) Twenty or thirty drops of gin tincture three or four times a day is useful in diabetes.

*Hibiscus Mosehatus*, (*Water Melon*.) Cold infusion is used for coughs, to be used freely.

*Hicorya*, (*Hickory tree*.) A tea made of the leaves and drank freely is good for eczema and other skin affections. The parts should be bathed in the same.

*Hieracium Venosum*, (*Hawkwood*.) A pill made of the extract taken every night on retiring is an excellent remedy for spermatorrhœa.

*Hippomane Maneinella*, (*Machinel Tree*.) Narcotic poison producing sleep, tremors, &c.

*Hispidula*, (*Creeping Wintergreen*.) Mild astringent and diuretic.

*Hopea Tinctoria*, (*Sweet Leaf, Horse Sugar*.) Root stomachic, depurative.

*Hordeum Vulgare*, (*Barley*.) Used as a gruel for nourishment.

*Humulus Lupulus*, (*Hops*.) Excellent anti-periodic and nervine. May be used in ague and all nervous affections. Dose, one gill of infusion three or four times a day.

*Hydrangea*, (*Bissum*.) Used in decoction or powder. Action mild, Equivalent to arbutus in gravel, &c.

*Hydrangea Arborescens*, (*Hydrangea*.) Used as a ute-

rine tonic. Also for gravel. Dose, tablespoonful of infusion every two or three hours.

*Hydrastis Canadensis*, (*Golden Seal*.) A pure vegetable tonic. May be used in all cases where such a remedy is indicated. Dose of the pulverized root, from three to ten grains. Dose of infusion, one tablespoonful repeated as often as indicated.

*Hydrophyllum Canadensis*. Used against the bite of the rattlesnake.

*Hyosciamus Niger*, (*Black Henbane*.) Official name, *Hyosciamus*. Vulgar names, *Henbane*, *Poison*, *Tobacco*, *Stinking Nightshade*, &c.

*Hypericum Perfoliatum*, (*St. John's Wort*.) A syrup of this article is very useful in old ulcers, which should be bathed in a decoction of the same.

*Hypogon Anisatum*, (*Aniseroot*.) Mild stimulant and stomachic.

*Hypophosphite of Lime*. Good in phthisis and all other diseases where an antacid and nerve stimulant are required. Dose, from five to ten grains.

*Hypophosphite of Potassa*. Good in lung diseases and debility of the nervous system. Dose—from one to two grains.

*Hypophosphite of Soda*. Ten grains triturated in six ounces of simple syrup is an excellent remedy for chronic dyspepsia. It is also good in lung affections and debility of the nervous system. A dose of the pure article is from one to two grains. It also constitutes one of the ingredients of the compound syrup of hypophosphites.

*Hypophosphorous Acid*. A valuable remedy in typhoid fever and all other diseases where phosphorus and an acid are indicated. Dose, from one to three drops, in water or simple syrup.

*Hypoxis Erecta*, (*Star Grass*.) Root edible, febrifuge, used in chronic ulcers and ague.

*Hyssopus Officinalis*, (*Hyssop*.) A warm tea drank freely produces perspiration.

*Iberis Amara*, (*Candytuft*.) The pulv. seed is used in epilepsy and hysteria. Dose, from one to five grains.

*Ictodes Fœtida*, (*Skunk Weed, Skunk Cabbage, Collard, Itch Weeds, Stink Poke, Skoka of the Indians*.) Antispasmodic and nervine. Good in whooping-cough, asthma, and phthisis. Dose, from three to five grains of the powdered root.

*Ignatius Amara*, (*Bean of St. Ignatius*.) An excellent remedy in neuralgia, spinal irritation, nervous headache. Dose, from one-eighth to one grain of the pulv. seed.

*Ilex Opaca*, (*American Holly*.) Tonic and febrifuge. Dose, from five to ten grains of the pulv. leaves.

*Impatiens Pallida*, (*Jewel Weed*.) A warm infusion drank freely is a good diuretic. Dose, half a wine-glassful three or four times a day.

*Imperatoria Ostruthium*, (*Masterwort*.) Good for spermatorrhœa, also catarrh of the lungs, and debility of the mucous membrane. May be used in the form of a decoction, ad libitum.

*Indigofera Tincturia*, (*Indigo Plant*.) Used in whooping-cough, cramps and spasms. Dose, from five to ten grains.

*Inula Helenium*, (*Elecampane*.) Good for coughs.

*Iodidum*, (*Iodine*.) Pure iodine is seldom used by Eclectic physicians, unless as an external application in the form of a tincture.

*Ipomœa Jalapa*, (*Jalap*.) An active hydragogue cathartic—one of the ingredients of antibilious physic. Dose of jalap, from five to twenty grains.

*Ipomœa Quamoclet*, (*Cypress Vine—Red Jessamine*.)

*Iris Florentina*, (*Fleur de Luce*.) A valuable alterative and purge. Used in syphilis and diseases of the liver. Dose, from one to three grains.

*Iris Versicolor*, (*Blue Flag*.) Sialagogue cathartic—valuable in all cases where indolent tumours are to be absorbed. Dose of the powdered root, from five to twenty grains.

*Ianthus Cæruleus*, (*Blue Gentian*.) Equivalent of *Teucrium*. Tonic to the lungs and stomach.

*Iva Frutescens*, (*Bastard Jesuit Bark*.) Used as a tonic in bitters. Said to be antiperiodic and febrifuge.

*Jacobia Aurea*, (*Ragwort*, *Liferoot*, *Anumguah of Indiana*.) A decoction drank freely is good for female irregularities.

*Jeffersonia Bartonica*, (*Common Twinleaf*.) Vulgar, *Yellow Root*, *Hemlockpod*, *Ground Squirrel Pea*.—Good in scrofula and all diseases where a mild alterative is required. May be made in a syrup and taken freely.

*Jeffersonia Diphylla*, (*Twinleaf*.) Diuretic, alterative and antispasmodic. Dose of decoction, from two to four fluid ounces.

*Juglans Cinerea*, (*Butternut*.) A syrup made of this article is an excellent remedy for eruptive diseases, salt rheum, &c. Dose, one tablespoonful three or four times a day.

*Juncus Acutus*, (*Rushes*.) Seeds cathartic—used for diarrhœa and fluxes.

*Juniperus Communis*, (*Juniper*.) Diuretic in dropsy, gonorrhœa, &c. The oil and berries are the parts principally used. Dose of the oil, from ten to twenty drops. Of the infusion of the berries, one wine-glass full three or four times a day.

*Juniperus Sabina*, (*Savin*.) The oil of this article is principally used as an emmenagogue. Dose, from ten to sixty drops.

*Juniperus Virginiana*, (*Red Cedar*.) The oil is an excellent remedy for rheumatism, sprains, bruises, &c.

*Kali Carbonicum*, (*Carbonate of Potash*.) Good in dis-



eases of the bowels and stomach. Dose, from one half to one grain.

*Kali Chloricum*, (*Chlorate of Potash*.) Valuable in diphtheria, dyspepsia, and phthisis. Dose, from one to two grains.

*Kali Hydriodicum*, (*Iodide of Potash*.) Valuable alterative used in connexion with alterative syrups. Dose, one grain.

*Kali Nitricum*, (*Nitrate of Potash*.) Febrifuge and diuretic. Dose, from one to two grains.

*Kali Sulphuretum*, (*Sulphuret of Potash*.) Good in diseases of the bladder and kidneys. One to two grains a dose.

*Kalmia Latifolia*, (*Sheep Laurel*.) The tincture is a valuable remedy for syphilis. Dose, five or six drops, five or six times a day.

*Kino*, (*Kino*.) An astringent gum used in four or five grain doses.

*Krameria Lanceolata*. Perhaps equiv. of valuable *Kr. Triandria*.

*Krameria Triandria*, (*Rhatany*.) A powerful astringent used in hemorrhage, dysentery, &c. Dose of the extract, from one to three grains, two or three times a day.

*Ruhnia Glutinosa*, (*Goldenrod Eupatorium*, *Three Sp.*) Weak eq. of *Eupatorium*.

*Lachesis*, (*Leachesis*.) Used by homœopathies for erysipelas, in third or fourth trituration.

*Lactuca Sativa*, (*Lettuce*), *Lactuca Virosa*, (*Strong Scented Lettuce*.) A mild anodyne. Used in nervous affections. Dose, one to three grains of the extract taken at bed-time.

*Lantana*, (*Sagetree*, *Blueberry*, *Cailleau in Louisiana*, *2 Sp. L. Floridana*, and *L. Undulata*.) Used in aphthous conditions of the mucous membrane, dysentery, &c. A tea, may be drunk freely.



*Lapargyrea*, (*Silverbush*, *Hippophæ Canadensis*, *L. Shepherdia*.) Berries, purgative.

*Larix*, (*Larch*, *Tamarack*, *Hackmatack*, two *Sp.*, *Black Larch*, *L. Pendula* and *Red Larch*, *L. Microcarpa*.) Used as a diuretic and astringent.

*Larix Americana*, (*Tamarac*.) A decoction of this article used freely is a good remedy for gleet.

*Laurus Sassafras*, (*Sassafras*.) One drachm of the pulverized bark taken every two or three hours during the paroxysms of ague, will prevent its return. As an antiperiodic it is about the strength of Peruvian bark.

*Lavandula Vera*, and *Lavandula Spica*, (*Lavender*.) A mild carminative used in wind colic.

*Ledum Latifolium*, (*Labrador Tea*.) A tea drank freely is an excellent remedy in bronchitis.

*Ledum Palustre*, (*Marsh Tea*.) Used as an expectorant in lung diseases, in the form of a decoction.

*Leonorus Cardiaca*, (*Motherwort*.) Nervine antispasmodic. A decoction drank freely is good for hysteria, nervous debility, weak stomach, &c.

*Leontodon Taraxacum*, (*Common Dandelion*, *Fr. Pissenlit Commun*, *Vulgar*, *Pissabel*, *Puff-ball*, &c.) A good alternative for the liver. A decoction of this root may be drank freely.

*Leptandrin Virginianum*, (*Caneer Root*, *Beech Drops*.) A poultice made of the pulverized root is good for indolent ulcers, cancers, &c. A decoction used internally is also valuable in dysentery and diarrhœa.

*Leptandria Virginica*, (*Culver's Physic*.) Mild purge in twenty or thirty grain doses.

*Leskea*, (*Several Sp.*) Sub-astringent mosses.

*Lencanthemum Vulgaris*, (*White Weed*.) A decoction is used in the place of chamomile.

*Liatris Spicata*, (*Button Snake Root*, *Devil's Bite*.) A uterine tonic. Also exerts a specific influence over the

stomach and kidneys in diabetes. In diabetes two ounces of pulverized root in a quart of best brandy. Dose, a tablespoonful three times a day.

*Lichen*, (*Treemoss*, *Rockmoss*, *Liverwort*, *Livermoss*, *Jeeland Moss*, *Lungwort*, *Orchil*.) Mucilaginous and expectorant. Used in diseases of the lungs, also for coughs and colds. A diuretic, sweetened and flavored with lemon juice, may be taken freely.

*Ligusticum*, (*Scoticum*, *Loveage*, *Smellage*.) Vermifuge and anti-spasmodic.

*Lilium Candidum*, (*Meadow Lily*.) The root boiled in milk makes a good poultice for ulcers.

*Limnetis*, (*Marshgrass*.) Good for bronchial affections.

*Linaria Vulgaris*, (*Toadflax*.) Diuretic, purgative, &c.

*Linneusia Borealis*, (*Twinflower*, *Ground Vine*.) Good in dysentery and diarrhœa.

*Linum Usitatissimum*, (*Flax-Seed*.) Used externally for poultices. Internally a sweetened tea is used for coughs and colds. Also as a mucilage in kidney and bladder affections.

*Liquidambar Styraciflua*, (*Sweet Gum*.) Used as one of the ingredients of poultice in scrofulous ulcers. Also a good tonic in scrofula, consumption, &c.

*Liquor Ammonia*, (*Aqua Ammonia*.) A volatile stimulant. Dose from two to three drops, in water.

*Liquor Ammonia Acetas*, (*Spirit of Mindererus*.) From a tea-spoonful to a table-spoonful given every hour or two. Is a good diaphoretic in fevers.

*Liriodendron Tulipifera*, (*Tulip Tree*.) A decoction of the bark drank freely is a good remedy for night sweats.

*Lithospermum Officinale*, (*Gromwell Eq. of Cynoglossum*.)

*Lobelia Inflata*, (*Lobelia*.) A valuable emetic, antispasmodic. Dose of pulv. seeds, one to five grains. Of the tincture, one tea-spoonful repeated every ten minutes until it operates. Used in all cases where emetics are indicated.

*Lolium Tremulentum*, (*Darnel Grass*.) Seeds narcotic.

*Lonicera Caprifolium*, (*Honeysuckle*.) A syrup used for sore throat, &c.\*

*Ludwigia Alternifolia*, (*Bastard Loosestrife*.) Several species subastringent.

*Lupinus Perennis*, (*Lupin, Fingerleaf*.) Diuretic and diaphoretic.

*Lycoperdon Proteus*, (*Puff Balls*.) Used in epistaxis, to stop the hemorrhage.

*Lycopus Virginicus*, (*Bugleweed*.) A decoction drank freely will cure bleeding at the lungs.

*Lysimachia Quadrifolia*, (*Crosswort, Yellow balm*.) A tea drank freely is good for fevers.

*Lythrum Salicaria*, (*Loosestrife*.) Used as a mucilage instead of slippery elm.

*Mabalus Albus*, (*Lion's Foot*.) The root steeped in milk is an antidote to the bite of poisonous reptiles. Dose one gill every two or three hours.

*Magnesia*, (*Magnesia*.) The citrate of magnesia taken in wine-glass full doses every half hour is a cooling purge.

*Magnesia Calcinata*, (*Calcined Magnesia*.) In half dram doses a mild purge and antacid.

*Magnesiae Carbonas*, (*Carbonate of Magnesia*.) Used for acidity of the stomach.

*Magnesiae Sulphas*, (*Sulphate of Magnesia*.) A common but miserable purge.

*Magnolia Glauca*, (*Magnolia*.) Used in form of bitters, a valuable remedy in chronic ague. A decoction of this article will prevent a love of tobacco.

*Malva Sylvestris*, (*Common Mallow*.) Used as a mucilage. Same as slippery elm as a mucilage.

*Mannita*, (*Sugar of Manna*.) Used with purges as an anthelmintic.

*Maranta Arundinacea*, (*Arrow Root Plant*.) Used in gruel for nourishment.

*Marchantia Polymorphia*, formerly used in herpetie diseases.

*Marrubium Vulgare* (*Horehound*.) A syrup of this article is an excellent remedy for coughs and colds.

*Martynia Proboscidea*, (*Double claw*.)

*Maruta Cotula*, (*Mayweed*.) Excellent tonic, and may be used in all cases instead of English chamomile.

*Matias*, (*Malambo bark*.) Used as a substitute for cinchona.

*Matico*, (*Soldiers' weed or Herb*.) A valuable styptic in all cases of passive and active hemorrhage.

*Matricaria Chamomilla*, (*German Chamomile*.) A mild tonic.

*Matricaria*, (*Featherfew*.) Eq. of Anthemis.

*Mel*, (*Honey*.) Used in syrups.

*Melilotas Officinalis*, (*Melilot Clover*.) An extract of the flowers, made in the form of an ointment, is a cure for piles.

*Melissa Officinalis*, (*Balm*.) A tea drank freely on retiring will break up a cold.

*Melothria Nigra*, (*Blackberry Vine*.) A decoction of the root is an astringent, and good for diarrhœa and dysentery.

*Menispermum Canadense*, (*Yellow Sarsaparilla*.) May be used freely wherever there are adhesions as the result of inflammation, as in pleurisy, &c. Dose of decoction, wine-glassful three times a day.

*Mentha Piperita*, (*Peppermint*.) Tea may be used in flatulency, &c.

*Mentha Viridis*, (*Spearmint*.) Properties nearly the same.

*Menyanthes Trifoliata*, (*Buckbean*.) Used in dropsy, syphilis, and necrosis. Dose, ten to twenty grains of pulverized root three or four times a day.

*Mercury Metallic*, and all the preparations not used by Eclectic physicians. See Poisons and their Antidotes.

*Mirabilis Longiflora*, (*False Jalap, Four o'clock, 3 Sp.*) Purgative. Used in dropsy.

*Mitchella Repens*, (*Partridgeberry.*) An infusion drank freely is an excellent remedy for painful menstruation.

*Momordica Elaterium*, (*Wild Cucumber.*) A hydragogue cathartic used in dropsy. One gill of the decoction is a dose.

‡ *Monarda Coccinea*, (*Scarlet Rosebalm;*) *Vulgar, Mountain Mint, Oswego Tea, Mountain Balm, Horse Mint, Squarestalk, Red Balm.* A tea drank freely is a good diaphoretic in febrile diseases.

*Monarda Punctata*, (*Horsemint.*) Used for nausea and vomiting in infusion.

*Monnina Polystachya* and *M. Pterocarpa*. Much esteemed. Their roots useful in the treatment of bowel diseases.

*Monotropa Uniflora*, (*Iceplant.*) Tea drank freely is good for St. Vitus' dance and epilepsy.

*Morphiæ Acetas*, (*Acetate of Morphia.*) In one-eighth grain doses a good anodyne.

*Morphiæ Murias*, (*Muriate of Morphia.*) One-sixteenth to one-eighth of a grain is a dose as an anodyne.

*Morphiæ Sulphas*, (*Sulphate of Morphia.*) One-eighth to one-fourth of a grain is a dose.

*Morus Rubra*, (*Red Mulberry.*) A mild diuretic. Dose, one gill of the decoction.

*Moschus*, (*Musk.*) A stimulant and antispasmodic. Used in typhus fever. Dose, one or two grains.

*Mucuna Pruriens*, (*Cowhage.*) Used for worms. Dose, twenty or thirty grains. Is a bad remedy, as it is liable to produce mucous inflammation.

*Musa Paradisica*, (*Banana, Plantation Tree.*) An anthelmintic. The fruit is laxative and diuretic.

*Myrica Cerifera*, (*Bayberry.*) May be used in all cases

of scrofula, dysentery, and consumption. Dose, one table-spoonful of the syrup two or three times a day.

*Myristica Moschata*, (*Nutmeg*.) A good nervine. Dose, eight or ten grains.

*Myrospermum Peruiferum*, (*Balsam of Peru*.) Ten or fifteen drops of the tincture is a good remedy for gonorrhœa.

*Myrospermum Toluiferum*, (*Balsam of Tolu*.) A good remedy for coughs and colds. Dose, a teaspoonful three or four times a day.

*Myrtus Communis*, (*Common Myrtle*.) A mild astringent.

*Myrtus Pimento*, (*Pimento*.) A tincture is a good remedy for wind colic. Dose ten or twenty drops.

*Naphthalin*. Compound, distilled from coal tar. Expecto- rant, and used in consumption and other diseases of the lungs. Dose, from fifteen to thirty drops.

*Nectandra Rodiæi*, (*Bebeeru*.) One gill of decoction of the bark, drank three or four times a day, is a sure cure for sterility in females.

*Nelumbium Luteum*, (*Yellow Nelumbo*, *Vulgar*, *Yellow Water Lily*, *Pond Lily*, *Water Shield*, *Water Nuts*, *Water Chincapin*, *Rattle Nut*, *Sacred Bean*, *Lotus*, &c.) The acetic tincture makes a valuable wash for eruptive diseases.

*Nepeta Cataria*, (*Catnep*.) An infusion of the leaves is good for colic in children.

*Nepeta Glechoma*, (*Ground Ivy*, *Chick Weed*.) Makes an excellent poultice for old sores.

*Nephrodium*, (*Felix Mas*.) Only used as an anthelmin- tic. Best in a fresh state; in two years it becomes inert.

*Nerium Oleander*, (*Rose Laurel*.) Poisonous.

*Nymphata Odorata*, (*White Pond Lily*.) Ten or fifteen grains of the pulverized root, taken in yeast, is a sure cure for nursing sore mouth. Also used in dysentery, leucor- rhœa, &c.

*Ocimum Basilicum*, (*Sweet Basil*.) Aromatic, stimu- lant, cardiacæ.



*Odostemon*, (*Mountain Holly, Purple Acid Berries.*) A decoction is good in dysentery.

*Enanthe Phellandrium*, (*Water Fennel.*) A good diuretic. May be drunk freely whenever such a remedy is indicated.

*Oenothera Biennis*, (*Tree Primrose.*) A syrup made of this article and used freely is an excellent remedy in scrofula, also an abortant.

*Olea Europa*, (*Olive Tree.*) Olives are a tonic and stomachic, produce the best sweet oil, so useful for food and light. Deemed a panacea in Africa and Greece for wounds, sores, colics, tenesmus, cough, rheumatism, hydrophobia, and poison.

*Oleander*, (*Oleander.*) Mild aromatic.

*Oleum Bubulum*, (*Neat's Foot Oil.*) Good for lubricating contracted tendons and muscles.

*Oleum Morrhuae*, or *Oleum Jecoris*, (*Cod-liver Oil.*) A good nourishment in all cases of debility. Dose, from one teaspoonful to a tablespoonful.

*Oleum Petrae*, (*Stone Oil.*) A good external application for burns.

*Oleum Ricini*, (*Castor Oil.*) Purge. In tablespoonful doses.

*Oleum Succini*, (*Oil of Amber.*) Good in liniments for rheumatism.

*Oleum Terebinthinæ*, (*Oil or Spirits of Turpentine.*) A diuretic, in ten or fifteen drop doses.

*Oleum Tigllii*, (*Croton Oil.*) In one-eighth to one-quarter drop doses, is valuable for dropsy. In one drop doses, it is an active purge.

*Onasmodium Virginianum*, (*False Cromwell.*) Used in gravel. Dose, one tablespoonful of the decoction three or four times a day.

*Ophioglossum Vulgare*, (*Snakeleaf.*) Emollient used for ulcers and sores.



*Ophiorrhiza Mitreola*, (*Pink Snakeroot*.) Equiv. of *Spigelia* and *Aristolochia* for worms and snake-bites.

*Orchis Masculæ*, (*Salep, Twinroot*.) Good for gravel, and diseases of the bladder.

*Origanum Vulgare*, (*Origanum Marjoram*.) Makes a good liniment for rheumatism.

*Ornithogulum*, (*Bethlehem Star Root*.) Edible emollient.

*Ornus Europæa*, (*Manna Tree*.) In drachm doses, is a mild laxative.

*Orobanche Americana*, (*Broomrape, Earthclub, Clapwort*.) Astringent, antiseptic, and antisymphilitic; deemed in the West, a specific for gonorrhœa and syphilis.

*Orobanche Virginiana*, (*Buck Drops*.) A poultice made of the pulv. root is said to cure cancer.

*Osmorrhiza Langystilis*, (*Sweet Cicely*.) Useful in coughs. A decoction may be drunk freely.

*Osmunda Cinnamomea*, (*Cinnamon Fern*.) Demulcent, subastringent, and tonic. Boiled in milk, it yields a fine mucilage, which is useful in diarrhœa.

*Osmunda Regalis*, (*Buck-horn Brake*.) Half a pint of strong decoction, drank on retiring, will remove obstruction of the menses.

*Ostrya Virginica*, (*Iron Wood*.) A half pint of decoction taken three or four times a day, will cure ague.

*Oxalis Acetosella*, (*Wood Sorrel*.) A salve made from the juice is a good remedy for cancer.

*Oxycocca Macrocarpa*, (*Large Cranberry, Vulgar, Common Cranberry, Mossberry, Swamp Redberry; Atoca in Canada; Sourberry*.) A poultice made of the berry is good for erysipelas.

*Oxyria Reniformis*, (*Boreal Sourdock, Vulgar, Mountain Sorrel, Welsh Sorrel*.) Good in scrofulous diseases; also used as a poultice in cancer.

*Pæonia Officinalis*, (*Peony*.) One or two ounces of decoction of the root is good for nervous affections.

*Panax Quinquifolium*, (*Ginseng*.) A decoction may be drunk freely.

*Papaver*, (*Poppy*.) All sp. produce opium.

*Parietaria Heterophylla*, (*Pellitory*.) Juice or decoction used as diuretic, &c.

*Parthenium Integrifolium*, (*Cutting Almond*.) Is a good diuretic; one tablespoonful of the gin tincture three times a day, is useful in dropsy.

*Pastinaca Sativa*, (*Parsnip*.) Root esculent, &c., seeds aromatic, used in agues; root of wild parsnip, acrid, emetic, producing sores by handling,

*Peonia Officinalis*, *Peony*, (*Cult. Root, and Seeds Nervine*.) Used in palsy, convulsions, epilepsy.

*Petroleum*, (*Petroleum*.) Is used for inhalation in lung diseases, and for liniments.

*Petroselinum Sativum*, (*Parsley*.) Used in dropsy, gonorrhœa, and diseases of the kidneys and bladder. Dose, one gill of infusion three or four times a day.

*Phosphorus*, (*Phosphorus*.) One grain triturated in one hundred grains of sugar, and one grain given three or four times a day, is a cure for impotency. Also used in the last stages of typhoid fever.

*Phytolacca Decandra*, (*Poke*.) Is emetic, cathartic, and alterative. Used in syphilis and obstinate diseases of the liver. Dose of the powdered root, from one to two grains.

*Picræna Excelsa*, (*Quassia*.) A bitter tonic used in the form of bitters in debility.

*Pimpinella Anisum*, (*Anise*.) A sweetened tea is used for infantile colic, &c.

*Pinckneya Pubens*, (*Pinckney Bark*, *Vulgar*, *Bitter Bark*, *Georgia Bark*, *Florida Bark*, *Fever-tree*.) Good tonic.

*Pinus Pendula*, (*Tamarac*.) Used in bitters, to increase the energy of the stomach.

*Piper Angustifolium*, (*Matico*.) Active astringent. Used in all cases of hemorrhage. Dose, from one to five grains of pulv. leaves; or from ten to twenty drops of the tinct.

*Piper Cubeba*, (*Cubeb*s.) Used in gonorrhœa, and diseases of the bladder and kidneys. Dose, ten to twenty grains of the pulv. article.

*Piper Longum*, (*Long Pepper*;) *Piper Nigrum*, (*Black Pepper*.) Four or five grains act as an antiperiodic in chronic ague.

*Pix Burgundica*, (*Burgundy Pitch*.) Good for plasters.

*Pix Liquida*, (*Tar*.) Used in consumption, bronchitis, and coughs. Dose, thirty or forty drops, in honey or simple syrup.

*Plantago Cordata*, (*Water Plantain*.) This article has been extensively used in diarrhœa, cholera morbus, and cholera. Dose, one wine-glassful of decoction of the root, three or four times a day.

*Plantago Major*, (*Great Plantain*.) Root, good febrifuge, astringent, vulnerary, used for tabes, ulcers, &c.

*Plumbum Aceticum*, (*Acetate of Lead*.) Astringent; used as a local application in inflammation.

*Podophyllum Peltatum*, (*Mandrake*.) The crude article is seldom used, except in irritating plasters.

*Polemonium Reptans*, (*American Greek Valerian*.) Nervine, antispasmodic. Used in hysteria, photophobia, chorea, &c. Dose, wine-glassful of decoction every two or three hours.

*Polygala Nuttallii*, (*Ground Centaury*.) A syrup made of this article, and taken freely, is almost a specific for incipient consumption.

*Polygala Paucifolia*, (*Dwarf Milkroot*, *Vulgar*, *Little Pollom*, *Evergreen*, *Snakeroot*.) Used in decoction as a diaphoretic.

*Polygala Bubella*, (*Bitter Polygala*.) Ten or twenty grains is a mild stimulating purge.

*Polygala Senega*, (*Seneka Snakeroot*.) Used as an ex-

pectorant, in the form of a syrup, in coughs, colds, &c.  
Dose, one teaspoonful three or four times a day.

*Polygonum Punctatum*, (*Water Pepper*.) An active emmenagogue and diuretic. Dose of the decoction, one gill three or four times a day.

*Polypodium Vulgare*, (*Common Polypody*.) A demulcent and anthelmintic. Dose, of the powdered plant, from one to four grains—repeated as indicated.

*Polythricum Juniperum*, (*Hair-cap Moss*.) A powerful diuretic. A decoction drank freely, is a very reliable remedy for dropsy of the heart.

*Populus Balsamifera*, (*Balsam Poplar, Balm of Gilead*.) A gin tincture of the buds is an excellent remedy for rheumatism. Dose, tablespoonful three or four times a day.

*Papulus Tremuloides*, (*American Poplar*.) An excellent stomach tonic.

*Potassæ Acetas*, (*Acetate of Potass*.) Good in bowel diseases—in five or ten grain doses.

*Potassæ Bitartras*, (*Bitartrate of Potassa*.) (*Cream of Tartar*.) A cooling diuretic and purge. Dose, one drachm, repeated as indicated.

*Potassæ Bromidum*, (*Bromide of Potassium*.) Said to be good in spermatorrhœa.

*Potassæ Citras*, (*Citrate of Potassa*.) Mild diaphoretic and antacid.

*Potassæ Chloras*, (*Chlorate of Potassa*.) Good in diphtheria and diseases of the stomach. Dose, one to two grains.

*Potassæ Cyanuretum*, (*Cyanide of Potassium*.)

*Potassæ Hydrargyro-iodidum*, (*Hydrargyro-iodide of Potassium*.)

*Potassæ Iodidum*, (*Hydriodate of Potassa*.)

*Potassæ Nitras*, (*Nitrate of Potassa*.) (*Saltpetre*.) A paper soaked in a strong solution, and burnt in the room, is a good remedy for asthma.

*Potassii Sulphuretum*, (*Sulphuret of Potassium*.)

*Potentilla Canadensis*, (*Five Finger*.) Boiled in milk, is an excellent remedy for dysentery. Dose, tablespoonful every half hour.

*Potentilla Tormentilla*, (*Tormentil*.) The dried leaves pulverized make a good cephalic snuff.

*Prinos Verticillatus*, (*Black Elder*.) Antiperiodic and tonic. May be used in all cases, instead of Peruvian bark.

*Prunus Virginiana*, (*Wild Cherry*.) A cold infusion, drank freely, is a good remedy for chronic dyspepsia, colds and coughs.

*Ptelea Trifoliata*, (*Wafer Ash*.) Taken in the form of a gin tincture, is an excellent tonic in all cases of debility.

*Pterilis*, *Aquilina*, *Pteris*, *Brake*. Roots of all edible—vermifuge.

*Pteris Atropurpurea*, (*Rock Brake*.) A strong decoction is said to be a reliable remedy in spermatorrhœa. Dose, one tablespoonful every two or three hours.

*Pterocaulon*, (*Blackroot*.) *Hinih* of Western Indians. Root alterative, detergent, drastic, abortive.

*Pterospora Andromeda*, (*Scaly Dragon-claw*.) Vulgar, *Dragon Root*, *Fever Root*, *Albany Beech-drop*. Good in gonorrhœa and gleet.

*Pulmonaria Officinalis*, (*Lungwort*.) A syrup made of this article is said to be an excellent remedy in pulmonary consumption.

*Punica Granatum*, (*Pomegranate*.) The bark is extensively used for tape-worm. Dose, twenty or thirty grains five or six times a day.

*Pyrethrum Parthenium*, (*Fever-few*.) Diaphoretic and mild stimulant. A decoction may be used in mild forms of fever, drank freely.

*Pyrola Maculata*, (*Spotted Pipsisseway*.) Vulgar, *Wintergreen*, *Whiteleaf*, *White Pipsisseway*, *Psiseva*, *Kingcure*, *Ground Holly*, *Rheumatism Weed*, &c. Good in scrofula. A decoction may be drunk freely.

*Pyrola Rotundifolia*, (*Round-leaved Pyrola*.) A decoction is a metastatic remedy in measles, scarlatina, and typhoid fever. Dose, tablespoonful every hour.

*Pyrus Malus*, (*The Apple Tree*.) Is used as a tonic, in the form of syrup, in cases of debility, &c.

*Quercus Albus*, (*White Oak*.) Powerful astringent, used for washes in old ulcers, &c.

*Quercus Infectoria*, (*Dyer's Oak*.) Used the same as white oak.

*Quiniæ Arsenarias*, (*Arseniate of Quinine*.)

*Quiniæ Arsenis*, (*Arsenite of Quinia*.)

*Quiniæ Citras*, (*Citrate of Quinine*.)

*Quiniæ et Cinchonix Tannas*, (*Tannate of Quinia and Cinchona*.)

*Quiniæ Ferrocyanas*, (*Ferrocyanate of Quinine*.)

*Quiniæ Hydriodas*, (*Hydriodate of Quinine*.)

*Quiniæ Lactas*, (*Lactate of Quinia*.)

*Quiniæ Murias*, (*Muriate of Quinine*.)

*Quiniæ Nitras*, (*Nitrate of Quinine*.)

*Quiniæ Phosphas*, (*Phosphate of Quinine*.)

*Quiniæ Sulphas*, (*Sulphate of Quinine*.)

*Quiniæ Valerianas*, (*Valeriate of Quinia*.)

All the preparations of quinine are antiperiodic, in doses of from one-half to five grains, and may be used in all cases where antiperiodics are required.

*Rafflesia Arnoldi*. A decoction employed in Java as an astringent.

*Ranunculus Acris*, (*Acrid Crowfoot*.) Vulgar, *Buttercups*, *Yellow Weed*, *Blister Weed*, *Pilewort*, *Burwort*, *Meadow-bloom*, *Yellows*, &c. An ointment made of the root is good for indolent ulcers and piles.

*Raphanus Sativus*, (*Rudish*.) Useful in convulsions, asthma, raucedo, ischuria.

*Rhamnus Catharticus*, (*Buckthorn*.) Used as an emmenagogue and abortant. Dose, from one to five grains.



*Rheum Palmatum*, (*Rhubarb.*) Used as a purge in diarrhœa and dysentery.

*Rhizophora*, (*Mangrove.*) Bark astringent, styptic, a bath of it useful for petechial fevers.

*Rhus Glabrum*, (*Sumach.*) Powerful astringent and antiseptic. Used in ophthalmia and leucorrhœa. Dose of the decoction, one tablespoonful every two or three hours.

*Rhus Toxicodendron*, (*Poison Oak.*) One drop of the tincture three or four times a day, is an excellent remedy for salt rheum, erysipelas, tetter, &c.

*Rhus Radicans*, (*Poison Ivy.*) One or two drops of the tincture three or four times a day is an excellent remedy for palsy, amaurosis, &c.

*Ribes Nigrum*, (*Black Currant.*) The bark of the root in strong decoction, is an excellent wash in eruptive diseases.

*Robina Pseudo-Acacia*, (*Locust Tree.*) A strong decoction of the bark is emetic and cathartic. Dose—one gill.

*Rosa*, (*Roses.*) Roots, galls, buds, and fruits of all astringent.

*Rosmarinus Officinalis*, (*Rosemary.*) An excellent remedy in female weakness, prolapsus uteri, &c. One tablespoonful of the syrup taken three or four times a day.

*Rubus Strigosus*, (*Red Raspberry.*) *R. Trivialis*, (*Dewberry, or low Blackberry.*) *R. Villosus*, (*Blackberry.*) Syrup of the bark of the root is a good remedy in dysentery and diarrhœa.

*Rudbeckia Lancinata*, (*Thimble Weed.*) A good remedy in enlargement of the spleen, and Bright's disease. Dose, one gill of decoction three or four times a day.

*Rumex Acetosa*, (*Sorrel.*) The dry extract is used as a caustic in cancers.

*Rumex Aquaticus*, (*Great Water Dock.*) *Rumex Britanica*, (*Water Dock.*) *Rumex Obtusifolius*, (*Blunt-leaved*



*Dock.*) *Rumex Crispus*, (*Yellow Dock.*) Used in combination with other articles, in the form of a syrup, for cleansing and purifying the blood.

*Ruta Graveolens*, (*Rue.*) A good remedy for seat worms and round worms of children. An ounce to one pint of gin. Dose, one tablespoonful at night on retiring.

*Sabbatia Angulatis*, (*American Centaury.*) Antiperiodic, used in fevers.

*Saccharum Officinarum*, (*Sugar Cane.*) It is edulcorant, relaxant, pectoral, vulnerary.

*Sagus Rumphii*, (*Sago.*) It is nutritive, and easy of digestion.

*Salicornia Herbacea*, (*Kelpwort, Samphire.*) Antiscorbutic, gives appetite.

*Salix Alba*, (*Willow.*) The catkins of the pussy willow in gin, is an antaphrodisiac. Dose, tablespoonful three times a day. The bark is used in fevers instead of Peruvian bark.

*Salsola*, (*Barilla, Stimulant.*) Antacid, diuretic, &c.

*Salvia Officinalis*, (*Sage.*) Used for worms and night sweats, a tea drank freely.

*Sambucus Canadensis*, (*Elder.*) One of the ingredients of the alterative syrup. Good in scrofula.

*Sanguinaria Canadensis*, (*Blood-root.*) Good in croup, acute disease of the lungs, bronchia and liver. Dose, from one to three grains.

*Sanicula Marylandica*, (*Sanicle, Black-snake Root.*) The pulv. root. two ounces added to one pint of port wine, and one tablespoonful taken three or four times a day, is good for epilepsy.

*Saponaria Officinalis*, (*Soapwort.*) An excellent remedy in intermittent fever. One half tea-cup full of decoction taken three times a day.

*Sarothra Gentianoides*, (*Groundbroom, Groundpine.*) Diuretic. Used in scrofula.

*Sarracenia Purpurea*, (*Sarracenia*.) Used in nervous affections. Dose, five or ten grains.

*Satureja Hortensis*, (*Summer Savory*.) A strong tea drank on retiring, relieves painful menstruation.

*Saururus Cernuus*, (*Lizard tail*.) Roots emollient, used in poultice, &c.

*Scilla or Squilla Maritima*, (*Squill*.) Eight or ten grains, given three or four times a day, act as a mild purge. It is also a diuretic and expectorant.

*Scleroticum Clavus*, (*Ergot*.) Specific as uterine parturient to help parturition in doses of five to ten grains.

*Scorzonera Hispanica*. Mild sudorific, &c.

*Scrophularia Nodosa*, (*Figwort*.) A syrup made of this article is an excellent remedy in fever, sores, white swelling, &c.

*Scutellaria Laterifolia*, (*Scullcap*.) One of the best nervines. Used in St. Vitus' dance, neuralgia, hydrophobia, hysteria, &c. Dose, one gill of strong infusion three or four times a day.

*Sempervivum Tectorum*, (*Common Houseleek*.) An ointment of this is excellent for burns. The tincture applied to the part will cure bee stings.

*Senecio Aurens*, (*Life Root*.) A gin tincture taken in wineglassful doses, three or four times a day, will remove all female irregularities.

*Sesamum Indicum*, (*Benne*.) A tea of the fresh leaves drank freely is a good diuretic.

*Sicyos Angulata*, (*Bryony, Wild Cucumber*.) Used in granulated condition of the mucous membrane. From five to ten drops of the tincture is a dose.

*Sigillaria Multiflora*, (*Multiflore Sealwort*.) Vulgar, *Solomon Seal, Dropberry*. Good demulcent, used in lung and catarrhal affections.

*Silphium Perfoliatum*, (*Indian Cup Plant*.) A good diaphoretic drink in fevers; may be used freely.

*Sinapis Alba*, (*White Mustard*. *S. Nigra*, (*Black Mustard*.) A teaspoonful of pulverized seeds acts promptly as an emetic.

*Sisyrinchium Anaps*, (*Lily grass, Scurvy grass*.) Root yellow acrid, decoction purgative, said to be an antidote of sublimate.

*Smilax Officinalis*, (*Sarsaparilla*.) Used for scrofula in form of syrup.

*Smilax Peduncularis*, (*Jacob's Ladder*.) Good in female obstructions.

*Sodæ Acetas*, (*Acetate of Soda*.)

*Sodæ Boras*, (*Borate of Soda, Borax*.) Ten grains dissolved in six ounces of water, injected into the rectum, will cure impotency, repeated as indicated.

*Sodæ Carbonas*, (*Carbonate of Soda*.) Three or four grains may be used as an antacid.

*Sodii Auro-Terchloridum*, (*Chloride of Gold and Soda*.) This article is used in syphilis, cancer, necrosis, mercurial diseases and tuberculous consumption. Dose, from one sixteenth to one eighth of a grain in simple syrup.

*Sodii Chloridum*, (*Common Salt*.) One fourth teaspoonful taken before each meal is one of the best known remedies for chronic dyspepsia.

*Solanum Dulcamara*, (*Bitter Sweet*.) A tea of this article drank freely is an excellent remedy for diarrhœa.

*Solanum Nigrum*, (*Garden Night Shade*.) An ointment is used for discussing indolent tumours. It should be made from the fresh leaves.

*Solidago Odora*, (*Sweet Scented Goldenrod*.) A tea is said to be a valuable remedy for palpitation of the heart, depending upon nervous debility.

*Solidago Rigida*, (*Hardleaf, Goldenrod*.) Tonic and astringent. One gill of decoction two or three times a day.

*Sorbus Pumilus*, (*Mountain Ash, Service tree*.) Good in hemoptysis and uterine hemorrhage.

*Sorghum Saccharatum*, (*Broom Corn, Indian Millet*, 2 species.) An active diuretic used in decoction.

*Soymida Febrifuga*. The bark is a tonic and astringent, found efficacious as a febrifuge in intermittent and remittent fevers.

*Spigelia Marylandica*, (*Pinkroot*.) Five or ten grains followed by a dose of podophylla will remove lumbricoid worms.

*Spiraea Tomentosa*, (*Hardhack*.) Used for dysentery and diarrhœa in children, in the form of a syrup. Dose, tablespoonful every hour.

*Spiritus Ætheris Nitrici*, (*Sweet spirits of Nitre*.) A cooling diuretic, used in five or ten drop doses for fever.

*Spiritus Pyroxilicus*, (*Pyroxylic Spirit*.) Wood naphtha. An excellent remedy for catarrhal affections of the head, bronchitis and consumption. It may be inhaled or may be given internally in fifteen to thirty drop doses, every two or three hours.

*Squilla Maritima*, (*Squill, Sea Onion*.) Emetic and expectorant.

*Statice Caroliniana*, (*Marsh Rosemary*.) Used in leucorrhœa, prolapsus uteri, dysentery, and chronic diarrhœa. Dose, from ten to twenty grains.

*Stellaria Media*, (*Chickweed*.) A syrup of this article is good in hooping-cough, bronchitis, and asthma. Dose, a tablespoonful three or four times a day.

*Stercimis Repens*. Diuretic, subastringent, &c.

*Sterculiaca Tragacantha* furnishes the Sierra Leone tragacanth; the *S. terens*—a similar product. The pod of *S. fœtida*, employed against gonorrhœa.

*Stillingia Sylvatica*, (*Queen's Root*.) Used mostly in a compound syrup. Useful in all diseases where an active alterative is required.

*Stramonium Datura*, (*Thorn Apple*.) An active narcotic. Ten or fifteen drops of the tincture is used in epilepsy and other nervous affections.

*Strychniæ Acetas*, (*Acetate of Strychnine.*) *Strychniæ Iodas*. *Iodate of Strychnine.* *Strychniæ Nitræs*. *Nitrate of Strychnine.* From one thirtieth to one fifteenth of a grain is used in palsies.

*Strychnos Nux Vomica*, (*Poison Nut; Nux Vomica.*) A tincture is used as a tonic and anti-periodic in doses of from one to five drops.

*Strychnos Ignatia*, (*St. Ignatius' Bean.*) An extract is valuable in spermatorrhœa and weakness of the sexual organs generally. From one-fourth to one-half grain is a dose.

*Styrandra*, (*Harewort, Adder tongue, Natasbuck of Algie tribes.*) Root diuretic.

*Succus Limonis*, (*Lemon Juice.*) Good to prevent sea sickness and scorbutic diseases.

*Sulphur*.—Used in most acute eruptive diseases. Dose, from one to ten grains.

*Sulphuris Iodidum*, (*Iodide of Sulphur.*) Good in scrofula and cutaneous affections. One to two grains a dose.

*Suriana Maritima*. Used for sore lips.

*Symphytum Officinale*, (*Comfrey.*) Is a good mucilaginous drink in coughs, colds, &c.

*Symplocarpus Fœtidus*, (*Skunk's Cabbage.*) The acetic tincture is valuable in hooping cough and spasmodic asthma. The pulverized root is also an active anti-spasmodic. Dose of tincture, one drachm; of the powder, ten to twenty grains.

*Tanacetum Vulgare*, (*Tansy.*) A decoction is a valuable emmenagogue. It also improves digestion. Dose, wine-glassful three or four times a day.

*Taraxacum*, *Dcns Leonis*, (*Dandelion.*) The extract or syrup is an excellent remedy for chronic diseases of the liver. It may be taken freely.

*Tephrosia Virginiana*, (*Hoary Pea.*) It is a powerful

alterative; used in syphilis and all cases where an alterative is required. Dose, from ten to twenty grains of the pulverized root.

*Thuya Occidentalis*, (*Arbor Vitæ*.) Used in intermittent fever, chronic diseases of the spleen. Dose, one-half pint of decoction three times a day.

*Thymelacæ Palustris*, (*Leather Wood*.) A good astringent.

*Thymus Vulgaris*, (*Thyme*.) A strong infusion, drank freely, is a diaphoretic.

*Tiarella Cordifolia*, (*Paasmung of Algie tribes*.) Root mucilaginous, pectoral.

*Tilia Americana*, (*Linden, Basswood, Whitewood, Spoonwood, Lucumug, of Mohegans, Lucuy or Wuckopy of Algie tribes*.) Antiperiodic and tonic.

*Tinctura Ferri Chloridi*, (*Tincture of Muriate of Iron*.) Used in erysipelas, puerperal fever and other diseases when there is great debility. Dose, from one to five drops.

*Tolutanum*, (*Balsam of Tolu*.) Expecto- rant, and a lung tonic.

*Trifolium Pratense*, (*Red Clover*.) The extract is used for cancers.

*Trigonella Fœnumgræcum*, (*Fenugreek*.) Used in nervous and hysterical affections.

*Trillium Latifolium*. *Broadleaf Bethroot, Vulgar, Bethroot, Rattlesnake Root, Wakrobin, Cough-root, Indian Balm, Groundlily, Jew's Harp, Indian Shamrock, Pariswort, Truelove*. Used in uterine hemorrhage and leucorrhœa. From five to ten grains a dose.

*Trillium Pendulum*, (*Bethroot*.) An excellent remedy in low forms of fevers accompanied with hemorrhage. Dose, five to ten grains.

*Triosteum Perfoliatum*, (*Fever root*.) The gin tincture taken in wine-glassful doses three or four times a day, is a good remedy for chronic rheumatism.



*Tropeolum Majus*, (*Nasturtium*, *Indian cress*.) Sub-acrid, diuretic, &c.

*Tussilago Farfara*, (*Colt's Foot*.) A decoction of the root is an excellent remedy in scarlatina and typhoid fever. Dose, tablespoonful every two or three hours.

*Ulmus Fulva*, (*Slippery Elm*.) Used as a cooling drink, and for poultices.

*Urtica Dioica*, (*White Nettle*.) A decoction is good for sterility, impotency, and weakness of the sexual organs. Dose, half gill three or four times a day.

*Uvaria Triloba*, (*Pafan or Pawpaw*.) A strong decoction taken in gill doses three or four times a day, cures epilepsy.

*Uvularia Perfoliata*, (*Bell-wort*.) Nervine, used in neuralgia and hysteria. Dose, twenty or thirty grains three or four times a day.

*Vaccinum Frondosum*, (*Blue Whortleberry*.) A syrup of this is good for gravel.

*Valeriana Officinalis*, (*Valerian*.) Nervine, used in all nervous affections. A decoction may be drunk freely.

*Valerianum Pauciflora*, (*American Valerian*.) Root tried in nervous diseases, perhaps Eq. of *V. officinalis*.

*Veratrum Viride*, (*American Hellebore*.) A tincture is used in all forms of fever and inflammation where there is a high grade of action. Dose, from one to ten drops.

*Verbascum Thapsus*, (*Mullin*.) A decoction drank freely allays pain in mumps and prevents metastasis.

*Verbena Hostata*, (*Vervain*.) Good in rheumatism, gout and piles. Dose of the tincture, one drachm three or four times a day.

*Veronica Beccabunga*. *Water Speedwell*, *Vulgar*, *Neckwood*, *Water Purslain*. Good diuretic.

*Veronica Officinalis*, (*Speedwell*.) A syrup is valuable in land scurvy or purpura. Dose, tablespoonful four or five times a day.



*Viburnum Opulus*, (*High Cranberry*.) One of the most powerful antispasmodics known. Used in tincture and decoction, in fits and spasms. Dose of decoction, tablespoonful every half hour; of tincture one drachm as indicated.

*Viburnum Prunifolium*, (*Black Haw*.) A decoction is good in incontinence of urine.

*Vinca Minor*, (*Periwinkle*.) Leaves bitter acid astringent.

*Viola Pedata* (*Blue Violet*.) A good poultice in rattlesnake bites, stings of insects, &c.

*Viscus Flavescens*, (*Mistletoe*.) Said to be valuable in palsy.

*Vitex Agnus castus*, (*Chaste tree*.) Leaves discutient, dispel swelling of joints and testicles applied warm.

*Xanthorrhiza*, (*Yellow Root*.) Is a tonic used in the form of bitters.

*Xanthoxylum Fraxinum*, (*Prickly Ash*.) Good in rheumatism, cholera morbus, and cholera. A tincture of the berries and bark is used.

*Xerophyllum Setifolium*, (*Turkey's Beard*.) The *Helonias frigida* is an active poison.

*Xyris Caroliniana*, (*Eyegrass*, *Headgrass*.) Roots and leaves used against lepra and diseases of the skin by Hindus.

*Zinci Iodidum*, (*Iodide of Zinc*.) Used as an ointment for indolent ulcers.

*Zinci Oxydum*, (*Oxyde of Zinc*.) Used as a wash for syphilitic ulcers.

*Zinci Sulphas*. (*Sulphate of Zinc*.) Used as a caustic in cancers.

*Zingiber Officinale*, (*Ginger*.) A stimulating diaphoretic—taken freely.

## PART V.

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### PHARMACY.

PHARMACY is the art of preparing and compounding medicines.

#### QUANTITY OF MEDICINE TO BE USED.

The quantity of medicine to be administered must depend altogether upon the age, temperament, constitution, &c. of the patient. For the proportionate doses of different ages, the reader is referred to the table of doses, as modified by age, in another part of this work. The time required for an ordinary dose of triturated medicine to pass into the circulation is from one to two hours; consequently, if the first dose is not sufficient to accomplish the ends for which it is given, it may be repeated every one or two hours until the desired effect is produced. Pure soft water is the best material in which to mix the medicine for administration; all jams and jellies should be carefully avoided, as they frequently entirely neutralize the medicinal properties of the article. If the medicine is a tincture, as aconite or veratrum, it may be largely diluted in soft water as one half drachm of the tincture may be added to one half tumbler of water, and one tablespoonful given every fifteen or twenty minutes until the requisite quantity has been taken. All the tinctures may be taken in this

way. In acute diseases, but one kind should be given at once, unless there is a marked indication for some other remedy which is compatible with the one being taken; or, unless the medicines possess the same properties, and one be mixed with the other to modify its action; as quinine and cornin, both being antiperiodics, when combined, one facilitates the action of the other; so with many other remedies.

To make an infusion of any article of medicine. Take one pint of warm or cold water, for one ounce of the remedy, much care being taken to prevent boiling or overheating, as this frequently destroys the virtue of the remedy.

#### ANTIPERIODICS.

Take extract cornus Florida, two drachms; piperin, twenty grains; make forty pills. Dose, one every hour for fifteen hours before the paroxysm.

#### BALSAMS.

##### *Balsam of Honey.*

- R. Balsam of Tolu (*Balsamum tolutanum*),..... ʒij.  
 Balsam of Fir (*Pinus balsamea*),..... ʒij.  
 Opium (*Popaver somniferum*).. ..... ʒij.

Dissolve all these in one quart of alcohol. Dose, a teaspoonful occasionally. Use —This preparation is also very useful in pulmonary diseases.—(*Beach.*)

##### *Pulmonary Balsam.*

Take of the roots of spikenard, elecampane, comfrey and blood root, of the leaves and flowers of horehound, and of the bark of wild cherry, each one pound. These may all be ground and tinctured by adding alcohol, water and sugar, sufficient to make three gallons of syrup. Or any portion of the above compound may be tinctured in sufficient alcohol to cover them, when the drugs may be boiled until the strength is obtained, and the tincture and

watery infusion may be mixed, and a sufficient amount of refined sugar added to make a thick syrup. The Pulmonary Balsam is one of the most valuable cough and expectorant syrups in use. It may be used in all cases of coughs and colds, also in bronchial and pulmonary affections. Dose is from one to two teaspoonfuls four or five times a day.

BITTERS.

*Restorative Bitters.*

Take tamarac bark, six pounds; prickly ash berries, four pounds; black cherry bark and root, three pounds; tansy, one pound; pulverize, and to one and a half ounces add boiling water, one pint; sugar, one pound; gin, one-half pint. Mix. Dose, wine-glassful three times a day.

*Spice Bitters.*

R. Poplar Bark ( <i>Liriodendron tulipifera</i> ),.....	lb	x.
Bayberry Bark ( <i>Myrica cerifera</i> ),.....	lb.	ij.
Balmony Bark ( <i>Chelone glabra</i> ), .....	lb.	ij.
Golden Seal ( <i>Hydrastis Canadensis</i> ),.....	lb.	j.
Cloves ( <i>Caryophyllus aromaticus</i> ),.....	lb.	j.
Cayenne Pepper ( <i>Capsicum baccatum</i> ), .....	lb.	ss.
Loaf Sugar, .....	lb.	xvj.

Let these articles all be made fine and well mixed. Put a tablespoonful of this compound, with four ounces of sugar, into a quart of boiling water. Take a wine-glassful three times a day before eating. This is a good bitter. Or a teaspoonful of these powders, with one of sugar, may be taken in a cup of hot water; or one ounce may be scalded in half a pint of hot water, and put into a quart bottle, which may be filled with good Malaga wine. Prepared in this way, it is an excellent bitter for weak patients.—(Thomson.)

*Tonic Wine Bitters.*

Take wild cherry, gentian, and black alder, each one ounce; orange peel, one ounce; boiling water, one pint;

loaf sugar, one pound; stir. When cold, add sweet wine, four pints; bottle tight. Dose, wine-glass full three times a day.

## CAUSTICS.

*Vegetable Caustic.*

Burn black ash or hickory bark, and beech bark, to ashes. Boil down to a salt. Keep from the air.

*Chloro-percha.*

Dissolve one ounce of gutta percha in four ounces of chloroform. Useful in all cases where collodion is used.

## CORDIALS.

*Anti-Dysenteric Cordial.*

R. Birch Bark ( <i>Betula len'a</i> ,).....	lb. ij.
Bayberry Bark ( <i>Myrica cerifera</i> ,) .....	lb. jss.
Wild Cherry Bark ( <i>Prunus virginiana</i> ,) ...	lb. j.
Peach Pits ( <i>Amygdalus persica</i> ,) .....	lb. j.
Water,                      Galls.....	ij.

Boil down to one and a half gallons, after which add half a gallon of good brandy, and loaf sugar sufficient to make it palatable. Dose, a wine-glassful three or four times a day. Use—This preparation forms a very excellent tonic and astringent for dysenteries and diarrhœas of long standing.—(*Beach.*)

*Mother's Cordial,*

Or Compound Syrup of Partridge Berry, according to the American Eclectic Dispensatory. Take partridge berry, one pound; helonias root, high cranberry bark, blue cohosh root, of each four ounces. Grind and mix the articles together, place the whole in a convenient vessel, cover them with fourth-proof brandy, and macerate for three days. Then transfer the whole to a displacement apparatus, and gradually add brandy until three pints of spirituous tincture have been obtained, which reserve. Then continue the displacement with hot water until the

liquid passes tasteless, add to this two pounds of refined sugar, and evaporate by a gentle heat to five pints, remove from the fire, add the reserved three pints spirituous tincture, and flavor with essence of sassafras. This preparation, says Dr. King, is a uterine tonic and anti-spasmodic. It may be used in all cases where the functions of the internal reproductive organs are deranged, as in amenorrhœa, dysmenorrhœa, menorrhagia, leucorrhœa, and to overcome the tendency to habitual abortion. The dose is from one to four tablespoonfuls three times a day; pregnant females, especially those of a delicate or nervous system, will find an advantage in taking one or two doses daily.

# DECOCTIONS.

## Diuretic Decoction.

R. Queen of the Meadow ( <i>Eupatorium purpureum</i> ,) ..	℥ij.
Milkweed ( <i>Asclepias Syriaca</i> ,) .....	℥ij.
Juniper Berries ( <i>Juniperus communis</i> ,) .....	℥ij.
Dwarf Elder ( <i>Aralia hispida</i> ,) ..	℥ij.
Spearmint ( <i>Mentha viridis</i> ,) .....	℥ij.
Wild Carrot Seed, ( <i>Daucus carota</i> ,) .....	℥ij.

Put all into a mortar and bruise. Make a strong decoction. Dose, half a pint, to be taken often through the day. Use.—This decoction is strongly diuretic, and is very useful in gravel, dropsy, &c.

# DIURETICS.

Diuretics increase the secretion and flow of urine. These remedies are often of great value in the treatment of disease. They operate with the greatest efficiency when largely diluted with warm water, and the surface is kept cool. Among the best diuretics are marsh-mallow, clivers, Indian hemp, queen of the meadow, and dwarf elder.

# DIAPHORETICS.

These are medicines which lessen the heat, by increasing the moisture of the surface of the body. They are ser-

viceable in all cases of fevers. Aconite and veratrum are among the best diaphoretics.

## DROPS.

*Antispasmodic Drops.*

Take equal parts of the saturated tinctures of red pepper, lobelia, and skunk cabbage root. This is a useful preparation, in cramps, spasms, convulsions, lockjaw, &c. Dose, half teaspoonful as often as required in convulsions and lockjaw; it must be poured into the corners of the mouth, and be repeated as occasion may require; generally the effect is almost instantaneous.

*Bronchitis Drops.*

Take the fluid extract of rumex crispus, rhus glabra, hyosciamus niger, uvularia perfoliata, and cypripedium pubescens; mix well together. The Bronchitis Drops are valuable in chronic bronchitis, laryngitis, &c. Dose, from five to ten drops, repeated as indicated.

*Diuretic Drops.*

R. Sweet Spirits of Nitre ( <i>Spiritus ætheris nitrici</i> ,)....	℥ij.
Balsam of Copaiba ( <i>Copaifera officinalis</i> ,).....	℥j.
Tincture of Gum-Kino ( <i>Pterocarpus erinaceas</i> ,) ....	℥ss.
Spirits of Turpentine ( <i>Pinus palustris</i> ,).....	℥ss.

Mix these together, and add one scruple of camphor. Dose, a small teaspoonful, well shaken, in mucilage of gum Arabic, three or four times a day. USE.—These drops are successfully administered in cases of scalding of urine, whether arising from syphilitic or other complaints. In inflammation of the kidneys, fluor-albus, &c., they give prompt relief. They are superior to all other preparations for these uses, and particularly in gonorrhœa. A beautiful emulsion is made of these drops, by adding the white of an egg, well beaten up.—(*Beach*.)



*Thomson's Hot-Drops, or "No. 6."*

R.—Spirits of Wine,..... gall. j.  
 Gum Myrrh. pulverized (*Balsamodendron myrrha*,) ... lbj.  
 Cayenne Pepper (*Capsicum baccatum*,) ..... ʒj.

Put them into a stone jug, and boil it for a few minutes in a kettle of water, leaving the jug uncorked. It may be prepared without boiling, by letting it stand, and shaking it two or three times a day, for a week, when it will be fit for use. Dose, from a teaspoonful to a tablespoonful, in a little hot water, or given in other medicine. Use.—These drops are to remove pain, and prevent mortification, either internally or externally. They may be used to bathe with in all cases of external swellings or pain. It is an excellent remedy for the rheumatism, in which case, take a teaspoonful; also, bathe the parts affected. It will relieve headache, by taking a dose, bathing it on the head, and snuffing it up the nose. It is good for bruises, sprains, swollen joints, and old sores; it will allay inflammation, reduce swellings, ease pain, and produce a tendency to heal. There is scarcely a complaint, in which this may not be used to advantage. It is the best preservative against mortification that I have ever found.—For bathing in rheumatism or itch, or for any other external application, add one quarter part of spirits of turpentine; and for sprains or bruises, a small quantity of camphor and nerve-ointment may be added.—*Thomson*.

ELECTUARIES.

*Paine's Pile Electuary.*

Take of cream of tartar, one ounce; electuary of senna, one ounce; flower of sulphur, one-half ounce; leptandrin, one drachm; euonymin, two drachms; simple syrup, one pint. Dose, tablespoonful twice a day, morning and evening. The above is designed to be used instead of the ordinary pile electuary. When used in connexion with pile ointment, it is almost a specific for all forms of prolapsus ani and piles.

## E M E T I C S .

Emetics are those remedies which evacuate the stomach. They are serviceable in the commencement of many fevers, also in some chronic diseases, and always when the stomach is loaded with some foreign substance. The best medicines for emetics, are lobelia, blood-root, and ipecac.

Before administering an emetic, the patient should drink a moderate quantity of some warm tea, as chamomile, catnip, ginger, or Thomson's composition. If lobelia is given, from one-half to one teaspoonful of the tincture may be taken every five or ten minutes, until it operates as desired. The tincture of blood-root and ipecac. may be used in larger quantities, say in teaspoonful doses. The pulverized seed of lobelia may be given, by adding one-half teaspoonful to one teacupful of warm water, and, after steeping ten or fifteen minutes, one tablespoonful may be taken every ten minutes, until the desired effect is produced. Thirty grains of pulverized ipecac., and sixty grains of pulverized blood-root, may be used in the same way.

*Valuable Emetic.*

Take lobelia, two drachms; blood-root, one drachm; skunk cabbage, one drachm; ipecacuanha, two drachms; Cayenne pepper, half drachm. Mix, and give a teaspoonful in warm herb tea; if the first dose is rejected, immediately repeat. Warm water or tea may be drunk freely afterward.

## E M M E N A G O G U E .

Take white turpentine, three drachms; sulphate of iron, one drachm. Make a pill of common size. Dose, one three times a day.

## E X P E C T O R A N T S .

*Expectorant, No. 1.*

Take balsam tolu, two drachms; balsam benzoin, one drachm; saffron, one-half drachm; honey, two drachms; hot alcohol, one pint; digest seven days. Dose, a teaspoonful.

*Expectorant, No. 2.*

Take blood-root, lobelia herb, skunk cabbage root, asarabacca, (hazelwort,) pleurisy root, each coarsely powdered, one ounce; alcohol, three pints; water, one pint. Let it stand fourteen days,—shake frequently.

For croup, hooping-cough, bronchitis and asthma, this is a valuable preparation, and is excellent as an emetic for children, being gentle, safe and certain. It is also good as an expectorant, tightness across the breast, and where there is an excess of phlegm.

*Directions.*—In croup, for children one year old, give one-half tablespoonful in molasses, and repeat every fifteen minutes, until vomiting is produced; after which, a teaspoonful may be given every hour or two, as required—the vomit to be repeated two or three times a day.

FOMENTATIONS.

Cloths wrung out of hot water, or an infusion of any medicinal substance, is applied for local congestion or inflammation. In these applications, the adjacent clothing should be protected from moisture by oil-silk.

GRANULES.

*Compound Podophyllin Granules.*

R.—Podophyllin,.....	3iij.
Capsicum,.....	3j.
Jalapin,.....	3iij.
Gum Arabic and Flower āā, .....	3j.

Form a pill mass, and make sixteen hundred and eighteen granules. Dose, from three to six, as a purge, once or twice a day, as an alterative, for the liver; much better than *Blue Pill*. (*E. E. Tuttle.*)

*Compound Leontodon Granules.*

R.—Podophyllin, .....	3j.
Leontodon, .....	3j.
Jalapin, .....	3ij.
Capsicum, .....	gr. xxx.
Hyoscyamin, .....	gr. x.

Mix. Make four hundred and eighty granules. Dose, from two to four, as a purge. (*V. L. Oliver.*)

## I N J E C T I O N S .

*Clysters, or Injections.*

When these are used merely to act upon the bowels, warm water or flaxseed water may be used. Any medicines may be thus administered when the stomach will not tolerate them.

*Injection for Dysentery.*

Tannin, one drachm; hydrastin, one-half drachm; morphine, two grains; starch, six ounces; water, one pint. Mix. Make into six ounce injections. One after every discharge.

## L I N I M E N T S .

*Concentrated Liniment.*

Take of oil of origanum, oil of hemlock, oil of cajeput, gum camphor, of each one pound; African red pepper, half pound. Digest two weeks, express and filter, and add of pure white soap sufficient to form a liniment. Very useful in painful affections.

*Counter-Irritating Liniment.*

Take alcohol, four ounces; oil stillingia, one drachm; oil capsicum, ten drops; croton oil, five drops. Mix. Apply with a small sponge. Good in bronchitis, chronic rheumatism, and in all diseases where counter-irritation is indicated. Enough should be applied, two or three times a day, to keep the surface slightly irritated.

*Goitre Liniment, Dr. D. Ecker.*

Take four ounces of nitrate of potassa, put into one quart of rain water, let it dissolve, then add two ounces of spirits of nitre, and one ounce of sulphuric acid, and four ounces of tincture of opium; then bottle for use. Wet the part affected, two or three times a day, until cured.

*Irritating Liniment.*

R.—Spirits of Turpentine, (*Pinus palustris*,)..... $\overline{3}$ j.  
 Croton Oil, (*Croton tiglium*,)..... $\overline{3}$ ss.  
 Olive Oil, (*Olea Europea*.)..... $\overline{3}$ j.

Add a little origanum or sassafras oil, and mix.

Use.—One of the best counter-irritants for chronic and deep-seated pains. Rubbed in daily, it produces copious eruptions. It is good in bronchitis.—(*Beach*.)

*Liniment.*

Take tincture capsicum, two ounces; oil origanum, two drachms; oil cinnamon, one drachm; tincture opium, three drachms; tincture camphor, one drachm; spirits ammonia, three drachms; turpentine, one-half ounce. Mix. Good for rheumatism.

*Valuable Stimulating Liniment.*

Take compound tincture of myrrh, Dr. Thomson's No. 6, one pint; oil of origanum, two ounces; oil of hemlock, three ounces; oil of turpentine, four ounces; Cayenne pepper, one ounce. Mix and shake well. This is a very useful application for rheumatism, stiffness of joints, &c. It may be used with advantage in erysipelas or black tongue, by rubbing the throat with it frequently. It may also be applied to the chest for diseases of the lungs, bronchial affections, &c. By applying a mullen leaf to the surface where this liniment has been applied, a blister will form immediately.

MIXTURES.

*Mixture for Ague.*

Take brandy, one pint; spirits of camphor, one ounce; cloves, half an ounce; jalap, half an ounce; Peruvian bark, two ounces; Canada snake root, one ounce; water, one pint. Put the cloves, jalap, Peruvian bark and snake root in the water, and boil to one-half pint, strain and add to the brandy. Dose, one tablespoonful three times a day.

*Asthma Mixture.*

R.—Ether Sulph..... Oij.  
 Lobelia Sem. pul..... ℥ij.

Let stand fourteen days before using it. Color with Cochineal Extract. To use, put ℥j. on handkerchief and inhale.

*Mixture for Asthma.*

Take glacial phosphoric acid, one half drachm; quinine, two scruples; extract cannabis indica, thirty grains; pulverized lobelia seed, twenty grains. Make three grain pills. Dose, two every three hours.

*Mixture for Baldness.*

The following is almost a specific for baldness, giving the hair a smooth, glossy and beautiful appearance.

Take lac sulphur, one ounce; sugar of lead, one half pint; sulphate of copper, five grains; pure water, one-half pint. Mix all together, and filter through thin paper; add to the mixture seven ounces of rose water; essence of bergamot, cinnamon, jessamine and peppermint, each one ounce. Bathe the head twice a day, and give a cold shower-bath once or twice a week. The essences are for the purpose of giving it a perfume, and may be omitted, and pure water added to the same amount.

*Mixture for Gonorrhœa.*

Take copaiba, tincture of cubebs, and syrup of uva ursi, of each two fluid ounces; gum Arabic, pulverized, two ounces; cinnamon water, sixteen fluid ounces. Mix; form an emulsion, and take one tablespoonful three times a day.

*Mixture for Hooping-Cough, No. 1.*

Take tincture of the bark of red root, ceanothus, two ounces; bloodroot, one ounce; black cohosh, one ounce; lobelia, half an ounce; mix. Dose for a child one year old, fifteen to twenty drops in cold, sweetened water, and gra-

dually increase. This is a good tincture for cough; but should not be used except in the absence of all inflammatory symptoms.

*Neutralizing Mixtures.*

**R.**—Rhubarb and bi-carbonate of potassa, of each one pound; alcohol, one half gallon. Tincture the rhubarb in the alcohol for two days; then filter and add to the drug one and a half gallons of water and evaporate down to one gallon; then strain and express by pressure. After which add the potassa and six pounds of white sugar. Heat until the sugar and potassa dissolve. When cool, add six ounces of good peppermint essence and the alcoholic tincture of the rhubarb. Dose, one tablespoonful as indicated.

*Mixture for Salt Rheum.*

Take molasses, one pint; sulphur, cream of tartar, one half pound; rhubarb, one ounce; nitrate of potassa, one ounce. Mix. Dose, tablespoonful.

*Mixture for Typhoid Fever.*

Take new oil of turpentine, two fluid ounces; bi-carbonate of soda, one drachm; pulverized gum Arabic and pulverized sugar, each two ounces; compound spirits of lavender, one-half fluid ounce; camphor water, four fluid ounces; peppermint, three fluid ounces. Mix, form an emulsion. Take a tablespoonful every two hours.

Tincture of aconite or tincture rhus may be added to this. Mix, and give as the case requires.

*Valuable Domestic Mixture for Dysentery.*

Take hot water, one-fourth of a pint; vinegar, half pint. Mix, and then continue to add common salt as long as the solution will dissolve it. Dose, for an adult, one tablespoonful every hour until the stools cease to be tinged with blood, or it operates freely on the bowels.



*Worm Mixture.*

R.—Populin.....	℥j.
Santonin.....	gr. xx.
Merrell's Ess. Tinct. of Pink Root.....	℥iv.
Fluid ext. of Antibilious Physic.....	℥iv.
Neutralizing mixture.....	℥j.

Rub the santonin in the neutralizing mixture, until thoroughly mixed; then add the other ingredients. Good to remove worms in children. Dose, from thirty to forty drops every half hour until it acts upon the bowels as a purge. If the worms are not removed, repeat every two or three days.

*Discutient Ointment.*

R.—Bark of Bittersweet root, ( <i>Celastrus Scandens</i> ),	℥ij.
Stramonium leaves, ( <i>Datura Stramonium</i> ),....	℥ij.
Cicuta leaves, ( <i>Conium Maculatum</i> ).....	℥ij.
Deadly Nightshade, ( <i>Atropa Belladonna</i> ),.....	℥ij.
Yellow Dock-root, ( <i>Rumex Crispus</i> ),.....	℥ij.
Lard.....	lb.

Bruise, and simmer the roots and leaves in spirits; then add the lard, and simmer till the ingredients are crisped.

USE.—This forms an exceedingly valuable ointment in discussing scrofulous, indolent, and glandular tumours and swellings. The parts should be rubbed for about half an hour at each application, and then a piece of cotton applied, secured by a proper bandage. (*Beach.*)

*Mild Zinc Ointment.*

Take hog's lard, two ounces; sulphuric acid, two drachms. Mix them in a glass mortar. This ointment is said to be an effectual cure for the itch.

R.—White wax.....	℥iss.
Balsam Fir.....	℥ij.
Pulv. Sulph. Zinc.....	℥ij.

Mix. Form an ointment.

*Ointments.*

An ointment for the cure of burns may be made as follows:—Take fresh butter, one-half pound; yellow dock root, cut in small pieces, one ounce; fresh raspberry leaves, one-half ounce; white wax, one ounce. Melt the butter and wax together, add the raspberry leaves and dock root, simmer fifteen or twenty minutes, and strain while warm. This is an excellent ointment for burns and scalds.

*Pile Ointment.*

Take extract of stramonium and tobacco—each one ounce; tannin, ten grains. Make an ointment, and bathe the parts.

*Tar Ointment.*

This ointment is much extolled for removing tettery eruptions, and for the cure of scald head. It is prepared by melting equal parts of tar and mutton suet, and then straining through coarse linen.

*Antibilious Physic.*

℞.—Take Pulverized Senna..... 1 lb.  
           Jalap ..... ½ lb.  
           Ginger ..... 1 ⅓.

Mix. This mixture forms one of the most valuable purgatives in use. It is mild, yet efficient, and is well adapted to evacuate the stomach and bowels, whenever it is indicated. Dose, five or ten grains every two or three hours, until it operates.

*White Liquid Physic.*

Take sulphate of soda, half pound; water, one and a half pints; dissolve, and then add nitro-muriatic acid, two fluid ounces; powdered alum, one drachm and eight grains. Dose, tablespoonful.

PILLS.

The most uncertain method of using medicines is in the form of pills, as they frequently become dry and hard, re-

quiring a long time to digest. They also frequently lose their strength by standing. Yet it is sometimes advisable to use some of the extracts in the form of a pill. They may be made by rolling in pure starch or pulverized liquorice, and only as fast as used.

#### *Antibilious Pills.*

R.—Aloes, pulverized, ( <i>Aloe socotorina</i> ,).....	℥v.
Dry Castile Soap, fine.....	℥ss.
Gamboge, pulverized, ( <i>Stalagmitis gambogia</i> ,).....	℥j.
Colocynth, ( <i>Cucumis colocynthis</i> ,).....	℥j.
Extract of Gentian, ( <i>Gentiana lutea</i> ,).....	℥j.
Mandrake, ( <i>Podophyllum peltatum</i> ,).....	℥j.
Cayenne pepper, ( <i>Capsicum baccatum</i> ,).....	℥ij.
Oil of Peppermint, ( <i>Mentha piperita</i> ,).....	℥ss.

Incorporate well together, and form into three grain pills.  
Dose, from three to five.

USE.—This makes one of the best pills for all ordinary complaints and purges, without griping or causing debility, or leaving the bowels in a costive state. (*Beach.*)

#### *Compound Copaiba Pill.*

R.—Oil of Copaiba, ( <i>Copaifera officinalis</i> ,).....	℥j. fl.
Oil of Cubebs, ( <i>Piper cubeba</i> ,).....	℥j.
Oil of Turpentine, ( <i>Pinus palustris</i> ,).....	℥j.
Calcined Magnesia,.. ..	℥ij.

Mix, and form sixty pills. Dose, one or two a day.

USE.—This has been recommended as an excellent preparation. (*Beach.*)

#### *Dr. Morrow's Antidyspeptic Pill.*

Take extract podophyllin, extract gentian, extract boneset, equal parts, two ounces; oil of cloves, twenty drops; pulverized lobelia seed and capsicum, equal parts, one ounce; Castile soap and gamboge, equal parts, four ounces; aloes, eight ounces. Mix. Form in pills. Dose, one to four.

*Female Pill.*

R.—Red Oxyde of Iron, (*Oxydum ferri rubrum*,)... ʒj.  
 Aloes, pulverized, (*Aloe socotorina*,)..... ʒj.  
 White Turpentine, (*Pinus palustris*,)..... ʒj.

Melt the turpentine, and strain; when cold, pulverize and mix all together, with mucilage of gum tragacanth. Dose, three or four, twice or three times a day, and drink motherwort tea during the time of taking them. USE.—This pill constitutes an efficient remedy in obstructed menses. (*Beach.*)

*Female Pill.*

R.—Sulphate Ferri,..... ʒj.  
 Senecioin, ..... gr. xxv.  
 Gossypin,..... ʒj.  
 Pulv. Aloes,..... ʒj.  
 Gum Arabic,..... ʒj.  
 Capsicum, ..... ʒj.  
 Podophyllin,..... ʒj.

Mix, and form a pill mass, and make two hundred and forty pills. Dose, from one to five a day. Good for amenorrhœa, leucorrhœa, female weakness, and all diseases dependent upon debility of the uterus and ovaries.

PLASTERS.

These are made by compounding medicines with gums, resins, &c.

*Adhesive or Strengthening Plaster.*

Take of rosin, one pound; beeswax, one ounce; Burgundy pitch, one ounce; mutton tallow, one ounce. Melt them together, and add olive oil, pulverized camphor, and sassafras oil, of each one-sixth of an ounce; West India rum, one fluid ounce. Stir well together, pour into cold water, and form it into rolls with the hands. This is an excellent plaster in weakness of the joints, rheumatism, weak back, weak chest, ulcers, &c.

*Black Plaster, or Healing Salve.*

R.—Olive Oil, ( <i>Olea Europæa</i> ,).....	qts. iij.
Common Resin, ( <i>Pinus palustris</i> ,).....	℥ij.
Beeswax,.....	℥iij.

Melt these articles together, and raise the oil nearly to the boiling point; then gradually add of pulverized red lead, two and a quarter pounds, if it be in the winter. If in the summer, two and a half pounds. In a short time after the lead is taken up by the oil, and the mixture becomes brown, or of a shining black, remove from the fire, and when nearly cold, add half an ounce of pulverized camphor. It should remain on the fire until it forms a proper consistence for spreading, which may be known by dipping a spatula or knife into it, from time to time, and suffering it to cool. Use.—We have found this elegant salve superior to every other, where applications of this kind are required. It has an excellent effect in burns, and in scrofulous, fistulous, and all other ulcers. It should be thinly spread on a piece of linen, and renewed once or twice a day. (*Beach.*)

*The Irritating Plaster.*

This is made by using boiled tar, one pound; Burgundy pitch, one-half ounce; white gum turpentine, one ounce; rosin, two ounces. Melt the tar, rosin and gum together, remove from the fire, and add finely pulverized mandrake root, blood-root, poke-root, Indian turnip, each one ounce. This plaster is used extensively in all cases where counter-irritation and revulsives are indicated, as in rheumatism, neuralgia, and chronic affections of the liver and lungs. By Eclectic physicians, this is used in many cases where blisters are used by the "Old School," and experience has shown it to be far superior.

## POULTICES.

*Sinapisms, or Mustard Poultices.*

These are prepared by adding one tablespoonful of mustard to three of flour, mixing with equal parts of vinegar and water. They are beneficially used to attract the blood from the deep-seated to the superficial capillaries. They are also applied to the spine and nape of the neck in inflammation of the brain.

*Cataplasms, or Poultices.*

May be made by moistening bread crumbs with milk. They may also be made of flaxseed. Roasted onions, snake-root, &c., may be used for poultices. They are useful in nearly all cases of local inflammations.

## POWDERS.

*Thomson's Composition Powder.**(Second Preparation.)*

R.—Bayberry, ( <i>Myrica cerifera</i> ,).....	lb. j.
Ginger, ( <i>Amomum zingiber</i> ,).....	lb. j.
Poplar bark, ( <i>Populus balsamifera</i> ,).....	lb. j.
Hemlock bark, ( <i>Pinus Canadensis</i> ,).....	lb. j.
Red or White Oak bark, ( <i>Quercus rubra</i> — <i>Quercus alba</i> ,).....	lb. ss.
Cayenne Pepper, ( <i>Capsicum baccatum</i> ,).....	℥ij.
Cloves, ( <i>Eugenia caryophyllata</i> ,).....	℥ij.

Pulverize, and mix well.

*(Another Preparation.)*

R.—Bayberry, ( <i>Myrica cerifera</i> ,).....	lbs. ij.
Ginger, ( <i>Amomum zingiber</i> ,).....	lbs. ij.
Poplar bark, ( <i>Populus balsamifera</i> ,).....	lbs. ij.
White Oak bark, ( <i>Quercus alba</i> ,).....	lb. j.
Cayenne Pepper, ( <i>Capsicum baccatum</i> ,).....	℥ij.
Cloves, ( <i>Eugenia caryophyllata</i> ,).....	℥ij.

Pulverize, and mix well. Dose, a teaspoonful in a cup of hot water, sweetened. Use.—Let either of these com-

pounds be taken for eanker, and to promote perspiration, the patient being shielded from the air. This is for the first stages and less violent attacks of disease. It is a valuable medicine, and may be safely employed in all cases. It is good for relax, pain in the stomach and bowels, and to remove all obstruction caused by cold. A few doses of this, the patient being in bed, with a steaming stone at the feet, will cure a bad cold, and usually throw off disease in its first stage. (*Thomson.*)

#### *Diaphoretic Powder.*

℞.—Gum Opium, pulverized, (*Papaver Somniferum*,).... ʒss.  
 Camphor, (*Laurus camphora*,)..... ʒij.  
 Ipecacuanha, pulverized, (*Cephælis ipecacuanha*,) ʒj.  
 Cream of Tartar, (*Potassæ bitartras*,)..... ʒj.

Pulverize each article separately, and then mix. Dose, ten grains as often as may be necessary. Use.—This forms a valuable anodyne, diaphoretic, and sudorific. It is beneficially administered in fever, diarrhœa, dysentery, and cholera morbus, and in all cases where an anodyne, combined with a sudorific, is required. In these diseases it should be given in small doses. It is also applicable to many other affections, such as rheumatism, gout, &c. It promotes perspiration, without increasing the heat of the body, producing a constant moisture of the skin for a great length of time, while it allays irritation; and it is particularly valuable in uterine and other hemorrhages. (*Beach.*)

#### *Red, or Styptic Powders.*

℞.—Copperas, (*Ferri sulphas*,)..... ʒvj.

Submit it to a red heat in a flame. A decomposition is thus effected, and a red substance formed. This, when pulverized, forms a powder, containing highly astringent properties. Use.—It is employed in the treatment of piles, and in hemorrhage. It may be mixed with a little melted tallow, and introduced up the rectum for the bleeding



piles. One drachm of this to an ounce of unsalted butter makes an excellent application for obstinate psoriasis or tetter. (*Beach.*)

*Thompson's "Woman's Friend."*

R.—Poplar bark, ( <i>Populus balsamifera</i> ,).....	lbs. v.
Unicorn, ( <i>Aletris farinosa</i> ,).....	lb. ss.
Cinnamon, ( <i>Laurus cinnamomum</i> ,).....	lb. ss.
Golden seal, ( <i>Hydrastis Canadensis</i> ,).....	lb. ss.
Cloves, ( <i>Eugenia caryophyllata</i> ,).....	lb. ss.
Cayenne pepper, ( <i>Capsicum baccatum</i> ,).....	℥iv.
White Sugar, ( <i>Saccharum alba</i> ,).....	lbs. vij.

Let them all be made fine, and well mixed. Dose.—A teaspoonful may be taken in a gill of hot water. Use.—This is an excellent article in female weaknesses, to prevent abortion, and to be used at the cessation of the menses. (*Thomson.*)

PURGATIVES.

Purgative medicines are those which increase the alvine evacuations, or increase the peristaltic action of the bowels. This class of medicines, although of great service in many diseases, is also capable of producing very bad effects.

The constant use of purgative medicines has a tendency to irritate and derange the action of the bowels. They are mostly useful in case of obstinate constipation; in most brain affections; in inflammation of the peritoneum; and in some other diseases; but in typhoid fever, inflammation of the stomach and bowels, and in all cases of great debility they are utterly inadmissible. Among the best purgatives are Euonymin, Podophyllin, Iridin, Neutralizing Cordial, and Anti-bilious Physic.

*For Cancer Salve.*

Dr. Fell uses this formula for cancer.

Take blood-root, half ounce; chloride of zinc, half ounce; water, two ounces. Mix for use. Apply on light leather, followed by elm poultice.

## SYRUPS.

In chronic diseases, syrup is often the best form of administering medicine, as much benefit is derived from the sugar it contains; frequently the sugar is more beneficial than the medicine.

Sugar serves the purpose of combustion in the lungs and extreme capillaries, thereby increasing the animal temperature, promoting secretion, excretion, &c. It is stated, upon good authority, that the negroes on the sugar plantations become very fat and free from disease during sugar boiling. And, as I have already stated, in the treatment of consumption, sugar is of great value. The best method of preparing syrup for domestic practice, is to add one pound to one pint of strong infusion.

*Acetic Syrup of Sanguinaria, or Blood-Root.*

.R.—Blood Root in powder,.....	3j
Acetic Acid, or Vinegar,.....	j pt.
Water,.....	j pt.

Add the blood-root to the vinegar and water mixed, and steep for two hours, then strain and add two pounds of white sugar. Simmer until a syrup is formed. This is the specific remedy for pseudo-membranous croup. It is also used in infantile pneumonia and bronchitis. Dose for croup is from one-half teaspoonful to one tablespoonful; but it should not be given in quantities sufficient to produce vomiting, unless there is imminent danger of suffocation; and then only sufficient to eject the mucus adhering to the upper part of the bronchii and trachea.

*Alterative Syrup.*

Take burdock and sarsaparilla, each one pound; yellow parilla, guaiacum, and five leaf ivy, equal parts, three-quarters of a pound; elder flowers, one half pound. Mix. Infuse, and make into four quarts of syrup. Dose, wine-glass full three times a day.

*Alterative Syrup, No. 1.*

R.—*Stillingia* Syl. pul.,..... ʒij.  
*Podo. Pelt.*, pul ,..... ʒj.  
*Scrofularia* Mery, pul., ..... ʒj.  
*Scutellaria* Lat., pul.,..... ʒj.  
*Chimaphilla* Umb., pul.,..... ʒj.  
 Make syrup, Oj. Dose, ʒj four times a day.

*No. 2.*

R.—*Sarsaparilla*, ..... lbs. vj.  
*Guaiacum* Shavings,..... lbs. iiij.  
*Sassafras* Root Bark,..... lbs. ij.  
*Elder* Flowers, } āā..... lbs. ij.  
*Burdock* Root, }  
*Cheap* Spirits, } āā ..... Cong. j.  
*Aqua Pura*, }

Boil well and pour off the liquid : then add water until the strength is obtained. Strain and reduce the whole of the liquid to sixteen pints, and add twenty-five pounds of white sugar. To every pint, half ounce of iodide of potassium.

Dose, wine-glass full three times a day.

*Alterative Syrup.*

Take burdock and yellow dock, equal parts, one pound; five leaf ivy, *scrofularia Marylandica*, equal parts, one-half pound; blue flag and poke, equal parts, four ounces. Make eight quarts of syrup. To each pint, one drachm of iodide of potassium may be added. Dose, one tablespoonful three times a day.

*Alterative Syrup.*

Take *sarsaparilla* and burdock, each one pound; yellow parilla, three-fourths pound; *guaiac* shavings, three-fourths pound; elder flowers and *sassafras*, each one-half pound; blue flag and dandelion, four ounces; five leaf ivy, three-fourths pound; prickly ash berries, one-fourth pound; wild turnip, one-fourth pound. Make three gallons of syrup. The *sassafras* and turnip must not be boiled. Sugar, one

pound to each pint of syrup; spirits, four quarts. Dose, tablespoonful three times a day.

*Syrup of Alum.*

R.—Of Pulverized Alum..... ℥j.  
Water ..... 1 pint.

Heat the water until the alum is all dissolved, and add one pound of refined sugar, simmer until a syrup is formed, strain, and when it is cool, it is fit for use. The syrup of alum is very valuable in whooping-cough, in chronic catarrh, and the early stage of pulmonary consumption. It is also used in leucorrhœa and diabetes. Dose is from one to two teaspoonfuls three times a day, as often as indicated.

*Antiscrofulous Syrup,*

As prepared according to the Eclectic Dispensatory. Take yellow dock root, two pounds; bark of the root of false bittersweet, one pound; bark of American ivy, *ampelopsis quinquefolia*, and figwort, of each half a pound; refined sugar, sixteen pounds. Grind and mix the drugs together, place the whole five pounds in a convenient vessel, cover them with alcohol of 76 per cent., and macerate for two days. Then transfer the whole to a common displacement apparatus, and gradually add hot water, until two pints have been obtained, which retain and set aside. Then continue the percolation, and of the second solution, reserve so much as contains a sensible amount of spirits, and evaporate the alcohol from it. Continue the displacement by hot water, until the solution obtained is almost tasteless, and boil down this weaker infusion till it begins to thicken, or until, when added to the balance remaining of the second portion after the evaporation of the alcohol, it will make twelve pints. To these two solutions combined, add sixteen pounds of refined sugar, and by heat dissolve, carefully removing the scum which arises as it comes to the point of boiling. Then, if it exceeds that quantity, evaporate the syrup with constant stirring, to

fourteen pints, remove from the fire, and when nearly cold, add the two pints of tincture first obtained, and make two gallons of syrup. Each pint will contain the virtues of four ounces of the ingredients. It may be flavoured with essence of wintergreen. It is used in all cases where an alterative is indicated in chronic hepatitis, rheumatism, syphilis, scrofula, cutaneous diseases, ulcers, white swelling, rickets, necrosis, and every taint of the system. Dose, from a teaspoonful to a tablespoonful three or four times a day.

*Cough Syrup.*

R.—Syrup of Gum Arabic.....	Oj.
Tinct. Prunus Virginiana.....	℥ij.
Tinct. Opii.....	℥j.
Acetic Syrup Sanguinaria.....	℥vj.

Mix. Dose, one tablespoonful every two or three hours.

*Dysentery Syrup.*

R. Turkey rhubarb,.....	} āā℥ij.
“ Leptandrin,.....	
“ Super-carbonate soda,.....	
“ White sugar,.....	℔j.
“ Hot water,.....	Oj.

Triturate well together. Add essence of peppermint and essence of anise, of each one dram; tinct. of catechu, two drams. For dysentery. Dose, one teaspoonful every half hour.

*Compound Syrup of Helianthus.*

Take five pounds of the helianthus seed, finely pulverized, to which add a sufficient quantity of water to macerate well; let this stand five days, then use a displacer, having the mass boiling hot; to this after being strained, add three gallons Holland gin, the very best; then add twenty-four pounds of loaf sugar; take of marsh mallow, two pounds; pulverized hydrastis Canadensis, two ounces; peach kernels, eight ounces; water, one gallon. Boil and strain, then mix the residuc with the gin and sugar; then boil all together until a complete syrup is formed; while

warm, add sulph. of morphine, in solution two drachms, and two pounds gum Arabic. This makes one of the very best stimulating expectorants now in use, and may be given in doses of from one drachm to two ounces three times a day. In this combination we have an expectorant, stimulant, anodyne, tonic, and diuretic. We have used this in a very large number of cases in both private and clinical practice. The report of the latter is published in the Journal monthly.

*Compound Syrup of Hypophosphite.*

The following formula has been made in view of the double purpose to which these salts are directed by Dr. Churchill, the increase of nerve force, and the elevation of the tone of the several functions concerned in alimentation and nutrition; and will afford an agreeable means of testing practically their merit. The iron salt is presented in a form well adapted for entering the circulation, whilst the acid, besides exerting its solvent power, adds to the agreeable taste of the preparation.

Take of hypophosphite of lime, two hundred and fifty-six grains; hypophosphite of soda, two hundred and ninety two grains; hypophosphite of potassa, one hundred and twenty-eight grains; hypophosphite of iron,\* (recently precipitated,) ninety-six grains; hypophosphorous acid solution, q. s., or two hundred and forty grains; white sugar, twelve ounces; extract of vanilla, half ounce; water, a sufficient quantity.

Dissolve the salts of lime, soda and potassa, in six ounces of water; put the iron salt in a mortar, and gradually add solution of hypophosphorous acid till it is dissolved; to this add the solution of the other salts, after it

\* This quantity, ninety-six grains of hypophosphite of iron, is obtained when one hundred and twenty-eight grains of hypophosphite of soda dissolved in two ounces of water is decomposed with a slight excess of solution of persulphate of iron; and the white precipitate will wash on a filter with water.



has been rendered slightly acidulous with the same acid, and then water, till the whole measures nine fluid ounces. Dissolve in this the sugar, with heat, and flavour the vanilla. Without flavouring, this syrup is not unpleasant, being slightly saline, and not at all ferruginous. Any other flavouring may be used, as orange peel, orange flower, or ginger. It is also suggested to physicians that glycerine may be used, wholly or partially, in sugar when indicated, six ounces and a half of glycerine being substituted for twelve ounces of sugar. The object of acidulating the saline solution, is to decompose any alkaline carbonate which may be present, and which has been noticed by the writer in some of the commercial soda salt. The dose of this preparation is a teaspoonful three or four times a day. A teaspoonful contains two grains of the lime salt, one and a half of the soda salt, one of the potassa salt, and three quarters of a grain of the iron salt, besides a little hypophosphorous acid.

*Syrup of Hypophosphite of Lime.*

Take of hypophosphite of lime, an ounce; water, nine and a half ounces; white sugar, twelve ounces; fluid extract of vanilla, half a fluid ounce. Dissolve the salts in the water, filter, add the sugar, dissolve by aid of heat, and add the vanilla. The dose is from a teaspoonful, ( $3\frac{1}{2}$  grs.,) to a tablespoonful (14,) according to the circumstances of the case, three times a day.

*Syrup of Marshmallow.*

R. Pulv. Marshmallow, ..... 3ij.  
Warm Water, ..... 1 qt.

Add the marshmallow to the water and simmer for half an hour, or until the water is evaporated to one pint, then strain, and add two pounds of white sugar and form a syrup. This syrup is mucilaginous and diuretic. Four ounces of syrup of marshmallow, and one drachm of



iodide of potassium, make a preparation of great value in empyema, and dropsical effusions. Dose of the simple syrup one tablespoonful every three or four hours; of the syrup and iodide of potassium, one teaspoonful three times a day.

*Pulmonary Syrup.*

R. Spikenard Root, ( <i>Aralia racemosa</i> ,) .....	℥xvj.
White Root ( <i>Asclepias tuberosa</i> ,).....	℥xvj.
Blood Root ( <i>Sanguinaria Canadensis</i> ,).....	℥viiij.
Elecampane ( <i>Inula helenium</i> ,).....	℥viiij.
Coltsfoot ( <i>Tussilago farfara</i> ,).....	℥viiij.
Boneset ( <i>Eupatorium perfoliatum</i> ,).....	℥viiij.
Poplar Bark ( <i>Populus tremuloides</i> ,).....	℥iv.
Seneca Snake Root, ( <i>Polygala senega</i> ,).....	℥ij.
Lobelia ( <i>Lobelia inflata</i> ,) .....	℥ij.
Slippery Elm Bark ( <i>Ulmus fulva</i> ,).....	℥viiij.
Proof Spirits,.....	galls. iij.

Bruise or pulverize all, and digest in the spirits for fourteen days; then strain, and add white sugar sufficient to form a syrup. Dose, a spoonful occasionally, in a mucilage of slippery elm. Use.—This is a most excellent remedy in all coughs and pulmonary affections.

*Compound Syrup of Sarsaparilla and Stillingia.*

Take of sarsaparilla, (*smilax officinalis*,) eight ounces; burdock root, (*lappa major*,) eight ounces; yellow dock root, (*rumex Britannica*,) eight ounces; stillingia root, (*stillingia sylvatica*,) six ounces; false bitter-sweet, (*celastrus scandens*,) four ounces; dandelion root, (*taraxacum dens leonis*,) three ounces; juniper berries, (*juniperus communis*,) three ounces; prickly-ash berries, (*aralia spinosa*,) one ounce; guaiacum wood, (*guaiacum officinalis*,) two ounces

Coarsely bruise the above ingredients, and moisten them with alcohol; let them stand two or three days. Then put them in a steam displacement apparatus, and pass through vapour of three pints of strong alcohol. Continue the dis-

placement with the steam of water, till the strength is exhausted; set aside the three pints of tincture which first passes, and evaporate the remaining decoctions to one quart; mix this with the tincture, add three quarts of sugar-house syrup, and when cold, add one and a half ounces of iodide of potassium.

The diuretic properties acting directly upon the kidneys, and at the same time gently determining to the skin, greatly promote the efficacy of this preparation in removing morbid conditions of the system, and restoring to health! Not only is the blood, and through it the whole economy gradually rendered healthy, but this process is facilitated by the eliminative qualities of the compound, which cause a constant excretion of abnormal and effete matters through the skin or kidneys according to the temperature surrounding the body, thus hastening the cure. Dose, one tablespoonful three times a day.

*Syrup of Stillingia.*

R. Queen's Root,	. . . . .	3 lbs.
Prickly Ash Berries,	. . . . .	1½ lbs.

1. Grind and mix the articles together, place the whole four pounds and a half in a convenient vessel, cover them with alcohol of 76 per cent., and macerate for three days. Then transfer the whole to a displacement apparatus, and gradually add alcohol until five pints of the alcoholic tincture have been obtained, which retain and set aside. 2. Continue the percolation, and of this second solution reserve as much as contains a sensible amount of spirits, and distil or evaporate the alcohol from it. 3. Continue the displacement by hot water until the solution obtained is almost tasteless, and boil down this weak infusion until when added to the second solution after the evaporation of its alcohol it will make twenty-four pints. 4. To these two solutions combined, add thirty-two pounds of refined sugar, and dissolve it by heat, carefully removing any scum

which arises as it comes to the point of boiling, and if it exceeds twenty-eight pints, evaporate to that quantity with constant stirring. Then remove from the fire, and when nearly cold, add the four pints of reserved alcohol tincture, and make four gallons of syrup, each pint of which will be equal to four ounces of the ingredients in medicinal virtue. This syrup is one of the most powerful alteratives known. It is used in all cases of syphilis, serofula, mercurial and glandular diseases. Dose, one teaspoonful three or four times a day. (This syrup is prepared according to the formula of the American Eclectic Dispensatory, John King, M. D.) The above formula is the best method of preparing the syrup of stillingia, and by tincturing and carefully boiling, the strength may be obtained, and the syrup prepared and used as directed. For domestic practice, however, these syrups can be bought already prepared, as most druggists keep them for sale.

*Compound Syrup of Stillingia.*

R. Take Stillingia Root, Root of Turkey Corn,  
 each..... 2 lbs.  
 Blue Flag Root, Elder Flowers, and Pipsis-  
 sewa leaves each..... 1 lb.

1. Grind and mix the articles together, place the whole seven pounds in a convenient vessel, cover them with alcohol of 76 per cent. and macerate for three days. Then transfer the whole to a displacement apparatus, and gradually add hot water until four pints of the alcoholic tincture have been obtained, which retain and set aside. 2. Then continue the percolation, and of this solution, reserve as much as contains a sensible amount of spirit, and distil or evaporate the alcohol from it. 3. Continue the displacement by hot water, until the solution obtained is almost tasteless, and boil this weaker infusion, until when added to the sound solution after the evaporation of its alcohol, it will make twenty-four pints. 4. To these two

solutions combined, add thirty-two pounds of refined sugar, and dissolve it by heat, carefully removing any scum which arises as it comes to the point of boiling, and strain. When nearly cold add the four pints of reserved alcoholic tincture, and make four gallons of syrup. Properties and use: The Compound Syrup of *Stillingia* is one of the most powerful and effective alteratives, and is extensively used by Eclectic practitioners in all cases of syphilis, scrofula, osseous, mercurial, hepatic, and glandular diseases, or in every case where an alterative is indicated. It is most commonly given with one ounce of Iodide of Potassium to each pint of syrup. The dose is a fluid drachm three or four times a day (American Eclectic Dispensatory, by John King, M. D.)

*Compound Spirits of Lavender.*

R.—Lavender flowers, ( <i>Lavendula spica</i> .).....	3ij.
Nutmeg, ( <i>Myristica moschata</i> ).....	3ij.
Mace, ( <i>Myristica moschata</i> .).....	3ij.
Cloves, ( <i>Eugenia caryophyllata</i> .).....	3ij.
Cinnamon, ( <i>Laurus cinnamomum</i> .).....	3ij.

Pulverize all these and add a quart of spirits. Digest for a week and then strain off the liquid.

Dose.—One or two teaspoonfuls of this may be taken often, in a little water, with loaf sugar.

Use.—This pleasant aromatic preparation is useful in debility, fainting, hysterics, and all nervous affections; it is also beneficial given for pain in the breast, flatulence, diarrhœa, &c. The common method of making this article with oil forms a very inferior preparation.—(*Beach.*)

*Spirits of Mindererus.*

R.—Vinegar, q. s.
Carbonate of Potash, q. s.

Mix well together.

Dose.—A tablespoonful three or four times a day, diluted with a little water.

Use.—This is given as a refrigerant in fevers, particu-

larly those of a typhoid type. I add the sal-æ-ratus, or bicarbonate of potash, instead of the ammonia.

### *Tinctures.*

The method of preparing tinctures is to add two ounces of the green vegetable to one pint of good pure whisky, and let it stand fourteen days, when it should be strained and bottled for use.

### *Acetic Emetic Tincture.*

Take lobelia seed, sanguinaria or bloodroot, and skunk cabbage, each one-half pound; vinegar, two pints. Tincture for three weeks. Dose, one tea or tablespoonful in mint tea.

### *Golden Tincture.*

Take balsam of tolu, gum guaiacum, gum hemlock,—the gums to be coarsely pulverized—gum myrrh, of each, two ounces; oil of hemlock, three ounces; oil of wintergreen, two ounces; alcohol, one gallon. Let stand 14 days. Shake frequently. This preparation is stimulating, healing, balsamic, diuretic, tonic, antacid, &c. It has proved highly beneficial as an internal remedy for rheumatism, colic, pains, chills, soreness, lameness, flatulence, sour stomach, languor, depressed spirits, palpitation, water brash, and a variety of painful affections. A tablespoonful added to a gill of sweetened water, and a draught taken every hour or two, will be found beneficial for individuals who are exposed to cold, damp, or wet weather, preventing them from being attacked with colds or rheumatism. Dose, from one teaspoonful to a tablespoonful according to the severity and obstinacy of the case, in a half glass of sweetened water, to be repeated frequently in severe cases, and the dose increased till relief is obtained.

J. K.

### *Sudorific Tincture.*

Take ipecacuanha, one ounce; snake root, one ounce; burdock seeds, one ounce; common saffron, half an ounce;

gum camphor, four drachms; Holland gin, one quart. Digest fourteen days, then filter. Dose, fifteen to thirty drops.

*Thomson's Third Preparation.*

R.—Lobelia seeds, pulverized, (*Lobelia inflata*,)..... $\bar{z}$ ij.  
Cayenne Pepper, pulverized, (*Capsicum baccatum*,).. $\bar{z}$ ij.  
Nerve Powder, (*Cypripedium pubescens*,)..... $\bar{z}$ j.

Put them into a pint of No. 6, shake them well together, and preserve it closely corked for use. Use.—This is for the most violent attacks of disease, such as tetanus or lock-jaw, hydrophobia, drowning, fits, spasms, and all cases of suspended animation. In all cases where the jaws are set, pour this into the mouth, between the cheek and teeth, and the muscles will relax, and the mouth soon come open. It goes through the system like electricity, giving heat and life to every part.—(*Thomson*.)

*Tonic Tincture.*

R.—Old Cider,.....galls. iv.  
White Oak bark, (*Quercus alba*,)..... $\bar{z}$ x.  
Horseradish-root, (*Cochlearia armoracia*,) lbj.  
Seneka Snake-root, (*Polygala senega*,)..... $\bar{z}$ vj.  
Carbonate of Iron, (*Ferri carbonas*,)..... $\bar{z}$ vj.  
Golden-Seal root, (*Hydrastis Canadensis*,).. $\bar{z}$ iv.  
Cayenne Pepper, (*Capsicum baccatum*,)..... $\bar{z}$ ij.

Bruise all fine, and add the cider; let it be shaken up every day for eight or ten days.

Dose.—For an adult, half or two-thirds of a wineglassful three times a day; for children, according to their age.

Use.—A sure remedy for intermittent fever, debility and an impoverished state of the blood. It is also excellent in obstructed menses, and for dropsy, worms, &c.

The preceding formula was communicated by Dr. Isaac S. Smith, of New York, a very judicious physician of reformed practice.



*Tonic Tincture.*

- R.—Eng. Camomile,..... $\bar{3}$ iv.  
 Scullcap,..... $\bar{3}$ ij.  
 Pulv. Guaiacum Lig..... $\bar{3}$ iv.  
 Queen of the Meadow..... $\bar{3}$ iv.

Make one gallon of tincture. Dose, one teaspoonful four times a day. Good in all cases of debility.

- R.—Peruvian Bark, (*Cinchona officinalis*,)..... $\bar{3}$ ij.  
 Wild Cherry bark, (*Prunus virginiana*,)..... $\bar{3}$ j.  
 Cinnamon, (*Laurus cinnamomum*,)..... $\bar{3}$ j.  
 Cloves, (*Eugenia caryophyllata*,)..... $\bar{3}$ j.  
 Nutmeg, (*Myristica moschata*,)..... $\bar{3}$ j.  
 Sulphur, (*Sulphur sublimatum*,)..... $\bar{3}$ j.  
 Wine,... ..qts. ij.

Let it stand a sufficient time to extract the strength.

Dose.—A wineglassful every two or three hours.

Use.—We have found this tincture an almost infallible cure for intermittent fever, or fever and ague, after suitable evacuants. It removes the disease when all other means fail. Up to the present period, (May, 1850,) I find this the best medicine for fever and ague of any with which I am acquainted. In two cases which have occurred within a few days, this tincture removed the paroxysms, where other remedies had proved of no avail; in one instance the patient had been under homœopathic treatment for months.—(*Beach*.)

*Tonic Tea.*

- R.—Camomile,  
 Scullcap,  
 Queen of the Meadow. }  $\bar{a}\bar{a}$

Dose.—One tablespoonful, added to one half pint of water; make a tea and drink during the day. A good tonic in all cases of debility.

*Eye Wash, No. 1.*

Take golden seal, half an ounce; borax, two drachms; sulphate zinc, ten grains; pure water, one pint. Mix, (cold) and let it stand to settle; when clear, decant.



*Table of Proportionate Dose for Different Ages.*

Under $\frac{1}{2}$ year,	one-fifteenth of a full dose,	or	4 grains.
" 1 "	one-twelfth	" "	5 "
" 2 "	one-eighth	" "	$7\frac{1}{2}$ "
" 3 "	one-sixth	" "	10 "
" 4 "	one-fifth	" "	12 "
" 7 "	one-third	" "	20 "
" 14 "	one-half	" "	30 "
" 20 "	two-thirds	" "	40 "
" 21 "	the full dose,	" "	1 dr.
" 63 "	eleven-twelfths,	" "	55 grains.
" 77 "	five-sixths,	" "	50 "
" 100 "	two-thirds,	" "	40 "

To the above rule there are certain exceptions; thus castor oil requires to be given in larger proportionate doses, while opium, and the narcotics generally, should be administered in smaller proportionate doses.

*Sex, temperament, and idiosyncrasy*, have also a modifying effect upon the dose, and they should always be kept in view in the administration of medicines.

Females usually require smaller doses than males; and persons of a sanguine temperament bear depletory medicines better than the phlegmatic.

*Weights and Measures.*

In America, in buying and selling medicine, the avoirdupois weight is used; but in compounding medicines, druggists use the apothecaries' weight. This is divided into grains, scruples, drachms, ounces, and pounds:—twenty grains make one scruple, three scruples one drachm, eight drachms one ounce, twelve ounces one pound. For measuring fluid medicines, a small glass is used, called the graduated measure—the size of which varies from one drachm to one ounce. When fluid measures are to be measured accurately, the graduated measure should always be used.

*Explanation of Signs and Abbreviations.*

- ℞ Recipe. Take.  
 āā Ana. Of each.  
 ℔ Libra vel libræ. A pound, or pounds.  
 ℥ Uncia vel uncia. An ounce, or ounces.  
 ℥ Drachma vel drachmæ. A drachm, or drachms.  
 ℥ Scrupulus vel scrupuli. A scruple, or scruples.  
 O Octarius vel octarii. A pint, or pints.  
 f℥ Fluiduncia vel fluiduncia. A fluidounce, or fluid-ounces.  
 f℥ Fluidrachma vel fluidrachmæ. A fluidrachm, or fluidrachms.  
 ℥ Minimum vel minima. A minim, or minims.  
 Chart. Chartula vel chartulæ. A small paper, or papers.  
 Coch. Cochlear vel cochlearia. A spoonful, or spoonfuls.  
 Collyr. Collyrium. An eye-water.  
 Cong. Congius vel congii. A gallon, or gallons.  
 Decoct. Decoctum. A decoction.  
 Ft. Fiat. Make.  
 Garg. Gargarysma. A gargle.  
 Gr. Granum vel grana. A grain, or grains.  
 Gtt. Gutta vel guttæ. A drop, or drops.  
 Haust. Haustus. A draught.  
 Infus. Infusum. An infusion.  
 M. Misce. Mix.  
 Mass. Massa. A mass.  
 Mist. Mistura. A mixture.  
 Pil. Pilula vel pilulæ. A pill, or pills.  
 Pulv. Pulvis vel pulveres. A powder, or powders.  
 Q. s. Quantum sufficit. A sufficient quantity.  
 S. Signa. Write.  
 Ss. Semis. A half.

## ANTIDOTES TO POISONS.

The term antidote had, formerly, a much wider signification, and was applied to the remedies for diseases occurring from natural causes, as well as to the remedies for the derangement of the functions, arising from the direct introduction into the system of a known and material poison.

The selection of appropriate means to counteract the effects of poison must be determined by a knowledge of the manner in which each particular poison acts; but as our limits will not permit us to enumerate or specify these, some general rules, only, will be given.

The first indication is to remove the poisonous substance; the second, is to prevent or limit its local effects; the third, to obviate the effects on remote organs, supporting their action by appropriate measures, till the injurious impression has subsided. The first of these is to be accomplished mostly by mechanical means. If the poison has been applied to any external part, as by the bite of a viper or rattle-snake, a cupping-glass, or what will answer as well, a wine-glass, tumbler, or cup of any kind, from which a part of the air has been expelled, by holding within it a lighted candle for a second of time, should be applied immediately.

If poison has been taken into the stomach, and is not of a kind to arrest instantly the action of the heart, its removal is to be attempted by the stomach-pump, or by exciting vomiting. The stomach-pump cannot well be used without introducing into the stomach a considerable quantity of water which, by diluting the poison, lessens its violence, in all cases, except that of oxalic acid. But should a stomach-pump not be at hand, we must attempt to produce vomiting by every means in our power. For this purpose, a table-spoonful of flour of mustard, which is mostly to be found in every house, may be put into a tumbler of warm water, and given to the patient; or twenty grains of sulphate of zinc, (white vitriol,) dissolved in a pint of warm water, and the

disposition to vomit encouraged by tickling the throat with a feather, and pressing on the pit of the stomach. Neither ipecac. nor tartar emetic should be given, as their action is always preceded by much nausea, during which the absorption of the poison is often facilitated.

When the poison is of a corrosive or irritant nature, instead of losing time in seeking the means of causing vomiting, it is in general advisable to adopt the second rule, and attempt to prevent or limit its local, and thereby its remote, effects. To accomplish this we must ascertain what the poisonous substance was from which the patient is suffering, and must also know how it acts, as upon this depends the success of our treatment. The objects we should have in view are either to dilute, and so weaken it; to supply from an external source the particular principle which the poison would abstract from the coats of the stomach; or, by adding something to it, so change its nature as to render it comparatively or altogether harmless, which last will always be effected if we can succeed in forming an insoluble compound. The first may be done by giving plenty of warm water; and when we know the particular poison, if the warm water can be made the vehicle of an antidote, the second or third object will also be insured. Suppose sulphuric acid (oil of vitriol) has been swallowed; add to the water, chalk, magnesia, soda, saleratus, or soap; the acid will form with these substances purgative salts, and will, by their action on the bowels, assist in lessening the inflammation caused by the poison before its being neutralized. So when sugar of lead (acetate of lead) is swallowed, by giving Epsöm salts (sulphate of magnesia) we form an insoluble sulphate of lead, which will be discharged by the bowels, operated upon by the magnesia, which has been freed from the sulphuric acid. Corrosive sublimate (bichloride of mercury) abstracts from the coats of the stomach the albumen which they contain, by which it is converted into proto-chloride, or calomel; now if, by giving

white of egg, which is pure albumen, we supply it with the principle which it would otherwise obtain from the coats of the stomach, we shall preserve these entire.

Such means, then, are antidotes, properly speaking; for the means by which the secondary or remote effects are to be combated, deserved rather to be termed counter-poisons. The counter-poisons are of no small value in cases of poisoning by the corrosive or irritant, while they are of the utmost importance in the treatment of the sedative and narcotic poisons. To administer these appropriately, we must know which of the vital organs the poison most speedily affects. When it affects the heart, the symptoms greatly resemble syncope, (or fainting;) and as such poisons are the most dangerous agents, which act as rapidly as the poisons, are alone to be trusted to; such agents are to be found among the diffusible stimuli, ammonia, or its carbonate, i. e., smelling-salts, applied to the nostrils, or dissolved in water and taken into the stomach, warm brandy and water, &c. Where it chiefly affects the spinal marrow, there occur spasms and difficulty of breathing; when the brain, there is a partial or complete insensibility, (coma,) often with, at first, full pulse, flushed face, and laborious breathing, resembling apoplexy. In such a state of affairs, artificial respiration, with the administration of coffee and vinegar, greatly contribute to save the patient.

#### *Antidotes to Vegetable Alkaloids.*

In poisoning by opium, salts of morphia, hemlock, aconite, belladonna, strychnine, colchicum, &c., take iodine, grs. iij.; iodide of potassium, grs. vj.; water, 16 ounces. The stomach having been emptied, the mixture is to be given by glassfuls, still encouraging the vomiting; and to be followed (in the case of narcotics) by strong infusion of coffee. Purified animal charcoal absorbs and renders inert

the active principle of many vegetable poisons, given in doses of an ounce or more, diffused in warm water.

*Antidotes to Metallic Poisons.*

The salts of mercury, copper, and lead, are decomposed by the hydrated proto-sulphuret and per-sulphuret of iron, and the compounds produced are comparatively inert. The antidote for poisoning by arsenic, is the hydrated sesquioxide of iron. It may be made by adding carbonate of soda to the muriate of iron. It should be given in the moist state, mixed with water. After being once dried, it loses much of its power.

When given in time, magnesia and chalk are an antidote for the mineral acids and oxalic acid; albumen (white of egg) for corrosive sublimate and verdigris; bark, for tartar emetic; common salt, for lunar caustic; sulphate of soda, or magnesia, for sugar of lead and muriate of baryta; vinegar and oil, for the fixed alkalies. These substances act either by neutralizing the corrosive power of the poison, or by forming with it an insoluble compound.

From what has been said upon this subject, the necessity of an acquaintance with it must be sufficiently clear, not only to insure our doing right, but to prevent us from doing wrong. By administering an ill-timed antidote, we may often hasten the fatal event; as where vinegar is given when opium has been swallowed, before it has been ejected from the stomach; and by throwing tobacco smoke into the bowels of a person apparently drowned, we extinguish the feeble spark of life, which might have sufficed to re-animate him, but for such injudicious interference.

*Acids.*

The antidotes for this class of poisons are alkaline substances, which, by combining with the acids, form neutral bodies. For this purpose carbonate of potassa or soda may

be used; also chalk, and magnesia, or its carbonate. These latter antacids are especially indicated, when the injurious influence of *oxalic* or *nitric acid* is to be prevented.

*Prussic, or Cyan-hydric Acid.*

Ammonia, or its carbonate, taken internally, and applied externally; chlorine, cautiously inhaled, or chlorine water given internally, or as an injection; cold effusions to the head and spine; brisk frictions, sinapisms, artificial respiration, &c.

*Alkalies.*

For caustic potassa or soda, or their carbonates, also water of ammonia, administer one of the vegetable acids, as vinegar, lemon or lime juice, or solutions of tartaric or citric acid. The fixed oils, as linseed, olive, and castor, by combining with free alkaline bodies, form soaps, by which their caustic effects are obviated.

*Iodine.*

As this substance combines with starch, to form the iodide of starch, a very insoluble body, any substance containing fecula should be administered, as common starch, arrow-root, wheat flour, &c. They should be mixed with warm water, by which the solubility of the starch is increased,—a matter of some importance.

*Tartar Emetic.*

For this salt, and other preparations of antimony, use astringent infusions, as oak bark, gall-nuts, Peruvian bark, or a solution of tannic acid, which combines with the oxide of antimony to form an insoluble body. The efficacy of astringent substances in cases of poisoning by this metal, depends upon the tannic acid which they contain.

*Arsenic, or Arsenious Acid.*

Hydrated sesquioxide, or peroxide of iron, should be administered every five or ten minutes, in teaspoonful doses,



until relief is obtained. The precipitated carbonate of iron may be used, but it is much inferior to the first-named agent. If the arsenic is in the form of *Fowler's solution*, then copious draughts of lime water should be given.

### *Copper.*

The poisonous influence of the salts of this metal, as sulphate of copper or the blue vitriol, verdigris, &c., may be prevented by the timely administration of albumen; white of eggs, beaten up with water, should be freely given; milk may also be employed. When a piece of copper, or an alloy of this metal, has been swallowed, the patient should abstain from the use of vinegar, or any acid body, which, by acting on the copper, would form a poisonous salt.

### *Lead.*

In order to counteract the injurious effects of the preparations of this metal, as sugar of lead, white lead, litharge, and red lead, sulphate of soda, or sulphate of magnesia, or phosphate of soda may be given for the soluble salts of lead. For the metal, or its insoluble forms, dilute sulphuric acid should be given. The elixir of vitriol answers very well for this purpose.

### *Phosphorus.*

Calcined magnesia should be given in water which has been boiled, in order to expel the atmospheric air from it.

## THE

### DIFFERENT SYSTEMS OF PRACTICE.

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THAT the reader may become familiar with the resources, not only of the American Eclectic System of Practice, but also with the practice of the Allopathist, Homœopathist and Hydropathist, I will here introduce a list of diseases, with their remedies, from the most approved authority of each system of practice. The Allopathic treatment I have given strictly according to Prof. Eberle, one of the most popular authors upon that system of practice. The Homœopathic practice is given according to J. Lourie, M. D., an author of great popularity among Homœopaths. The size of the dose and the trituration are given according to Jahr's and Gruner's Homœopathic Pharmacopœia. The Hydropathic treatment is given according to Shew, Trall, and other standard authorities.

#### ALLOPATHIC PRACTICE.

*Intermittent Fever.* — Treatment: — Emetics, opium blood-letting, nitre, camphor, sulphuric ether, magnesia, calomel and jalap, cinchona, quinine, potash, cloves, leeches, blisters, arsenic, sulphate of zinc, black pepper salivation.

*Remittent Fever.* — Treatment: — Blood-letting, cathartics, calomel and jalap, ipecac, nitre, salivation, epsom salts, castor oil, magnesia, opium, antimony, ammonia, cold water, leeches, blisters, balsam copaiva, sinapisms, warm bath, enemas, lemonade, quinine, gentian, serpentaria.

*Yellow Fever.*—Treatment:—Blood-letting, calomel, salivation, enemata, epsom salts, sponge with cold water, leeches, blisters, aperients, DIAPHORETICS, quinine, wine, ammonia.

*Synocha or simple continued Fever.*—Treatment:—Blood-letting, purgatives, soda, magnesia, antimony, jalap, cream of tartar, calomel, DIAPHORETICS, nitre, James's powders, digitalis, salivation, ipecac, sponging with cold water, blisters, cupping, leeches, enemata.

*Synochus Fever.*—Treatment:—The same as synocha throughout.

*Typhus Fever.*—Treatment:—Emetics, ipecac, calomel, gentle purgatives, castor oil, enemata, epsom salts, croton oil, salivation, blood-letting, effusions of cold water, diaphoretics, laudanum, nitre, wine, ammonia, camphor, opium, quinine, blisters, capsicum, serpentaria, camomile.

*Glossitis*, inflammation of the tongue.—Treatment:—Blood-letting, leeches, scarifying, incisious with scalpel, laxative enemata, blisters on the back of the neck.

*Tonsillitis, Quinsy.*—Treatment:—Blood-letting, scarifying the tonsils, cupping, an active purge, mild aperients, calomel, enemata, nitre, antimony, ammonia, liquorice, blisters, spirits turpentine, emollient poultices.

*Parotitis, Mumps.*—Treatment:—Keep the bowels open, diaphoretics, blisters, mercurial ointment, camphor, rubefacient liniments.

*Acute Gastritis.*—Treatment:—Blood-letting, leeches, blisters, mercurial ointment, mucilaginous drinks, vegetable acids, laxative enemata, opium, calomel

*Chronic Gastritis.*—Treatment:—Leeching or cupping, blisters, tartar emetic ointment, sulphate of iron, hyosciamus, morphia, nitrate of silver, borax, Dover's powder, balsam of copaiva, syrup of poppies, purgative enemata.

*Peritoneal Enteritis.*—Treatment:—Blood-letting, purgatives, laxative enemata, calomel, castor oil, opium,

spirits turpentine, blisters, emollient poultices, digitalis, wine.

*Dysentery.*—Treatment:—Bleeding, purgatives, castor oil, calomel, laudanum, emetics, ipecac, diaphoretics, salivation, mucilaginous liquids, nitrous acid, sugar of lead, leeches, blisters, emollient poultices, balsam of copaiva, turpentine, enemata, dogwood bark, diet, rice, barley.

*Chronic Enteritis.*—Treatment:—Proper diet, castor oil, laudanum, leeches, blisters, tartar-emetic ointment, calomel, balsam of copaiva, spirits turpentine, sulphate of iron, nitrate of silver, hyosciamus, elm bark.

*Acute Peritonitis.*—Treatment:—Blood-letting, leeches, emollient poultices, active cathartics, castor oil, spirits turpentine, cream of tartar, calomel, jalap, blisters, leeches, salivation, opium, digitalis, wine.

*Chronic Peritonitis.*—Treatment:—Leeches, blisters, mercurial ointment, tartar-emetic ointment, emollient poultices, warm baths, castor oil, cream of tartar, Dover's powder.

*Acute hepatitis.*—Treatment:—Blood-letting, mercury, castor oil, leeches, salivation, blisters, opium, antimony, warm bath, nitro-muriatic acid, cicuta, tonic bitters, nitric acid, extract of conium.

*Chronic hepatitis.*—Treatment:—Blood-letting, mercury, leeches, salivation, blisters, emollient poultices, blue-pill, conium, laxatives, epsom salts, gentian, columbo, nitro-muriatic acid, white precipitate, setons.

*Splenitis.*—Treatment:—Blood-letting, purgatives, counter-irritants, warm bath, leeches, tartar-emetic, mercury, setons, hyosciamus, diaphoretics, antimony, muriate of ammonia, ipecacuanha, iodine.

*Phrenitis, phrensy.*—Treatment:—Blood-letting, leeches, cold water or ice, active purgatives, calomel, senna, blisters, nitre, antimony, digitalis.

*Arachnitis, hydrocephalus.*—Treatment:—Laxatives,

calomel, blue-pill, castor oil, blood-letting, leeches, manna, laxative enemata, spigelia, ipecac, salivation, mercurial ointment, blisters, ice, tartar-emetic ointment, James's and Dover's powder.

*Cerebritis, softening of the brain.* — Treatment: — Blood-letting, sinapisms, opium, cold to the head, blisters, calomel, salivation.

*Peripneumonia.* — Treatment: — Bleeding, leeches, digitalis, nitre, castor oil, emetics, cooling diaphoretics, muriate of ammonia, antimony, calomel, opium, camphor, ipecacuanha, expectorants, blisters, squills, tartar-emetic ointments, setons, conium.

*Cynanche Laryngea, Laryngitis.* — Treatment: — Blood-letting, leeches, blisters, emollient poultices, emetics, calomel, sinapisms to the feet, lunar caustic, alum, bronchotomy.

*Cynanche Trachealis, Croup.* — Treatment: — Bleeding, blisters, emetics, warm bath, mercurial purgatives, antimony, enemata, salivation, ipecac, friction with turpentine, polygala senega.

*Acute bronchitis.* — Treatment: — Blood-letting, enemata, castor oil, emetics, tartar-emetic, ipecacuanha, squills, expectorants, opium, calomel, blisters, leeches, emollient poultices, warm bath, columbo, gentian.

*Chronic Bronchitis, Bronchial Consumption.* — Treatment: — Bleeding, leeches, warm climate, tartar-emetic ointment, emollient poultices, emetics, digitalis, antimony, squills, balsam copaiva, quinine, opium, conium, ipecac, prussic acid, sugar of lead, blue-pill, or calomel, salivation.

*Pthisis Pulmonalis.* — Treatment: — Blood-letting, digitalis, tartar-emetic blisters, issues and setons, gum arabic, prussic acid, acetate of lead, opium, uva ursi, expectorants, muriate of ammonia, tartar-emetic ointment, salivation, squills.

*Nephritis.*—Treatment:—Blood-letting, cupping or leeches, active cathartics, calomel, castor oil, enemata, emollient poultices, blisters, diaphoretics, antimony, steam bath, Dover's powder, uva ursi, opium, conium, lime water, balsam copaiva.

*Cystitis.*—Treatment:—Bleeding, leeches, emollient poultices, gentle laxatives, enemata, opium, introduction of catheter, steam bath, antimony, calomel.

*Chronic cystitis.*—Treatment:—Cupping, leeches, blood-letting, castor oil, magnesia, caustic issues on the thigh, muriated tincture of iron, beech leaves, uva ursi, ursi, elm bark injected into the bladder.

*Hysteritis.\**—Treatment:—Bleeding, leeches, emollient poultices, calomel, epsom salts, injecting warm emollient fluids into the vagina, blisters, nitre, antimony, opium.

*Chronic hysteritis.*—Treatment:—Blood-letting, cupping, purgatives, leeches, blisters, emollient injections, warm bath, mercury, camphor, antimony, balsam copaiva, muriate of ammonia, liquorice.

*Pericarditis.*—Treatment:—Calomel, bleeding, opium, salivation, leeches, blisters, cream of tartar, diuretics, squills, pustulation with tartar-emetic ointment, or a caustic issue over the region of the heart.

*Acute Rheumatism.*—Treatment:—Blood-letting, purgatives, calomel, epsom salts, emetics, antimony, opium, diaphoretics, salivation, quinine, colchicum, magnesia, stramonium, leeches, blisters.

*Chronic Rheumatism.*—Mercury, rhubarb, quinine, antimony, salivation, sarsaparilla, vapor bath, sulphate of zinc, stramonium, colchicum, arsenic, leeches, cups, blisters, spirits turpentine, capsicum, camphor, warm bath.

*Gout.*—Treatment:—Bleeding, cathartics, calomel, emetics, ipecac, opium, eupatorium perfoliatum, colchicum, magnesia, blue pill, camphor, ginger, savin, laudanum, sinapisms, enemata, cupping, leeching.

*Catarrhal Ophthalmia.*—Treatment:—Scarifying, antimony, calomel and jalap, emollient applications, opium, solution of zinc, nitrate of silver, corrosive sublimate, ipecac, blisters, lunar caustic, quinine, bark, arsenic.

*Rheumatic Ophthalmia.*—Treatment:—Bleeding, antimony, opium, calomel, Dover's powder, blisters, cupping, puncturing the cornea, aqueous solutions of opium.

*Purulent Ophthalmia.*—Treatment:—Blood-letting, leeches, decoction of poppy-heads, calomel, ipecac, antimony, castor oil, blisters, emollient fomentations, lime, nitrate of silver, quinine, nitric acid.

*Scrofulous Ophthalmia.*—Treatment:—Leeches, purgatives, calomel, castor oil, rhubarb, emetics, antimony, Dover's powders, sarsaparilla, quinine, barytes, iodine, nitrate of silver.

*Syphilitic and strumous iritis.*—Treatment:—Mercury, antimony, jalap, salivation, belladonna, precipitate ointment, chalk, quinine, setons in the nape of the neck.

*Variola, Small-pox.*—Treatment:—Blood-letting, purgatives, calomel, emetics, diaphoretics, nitre, antimony, ammonia, cooling regimen, wine, camphor, quinine, opium, blisters, scarifications, chalk, ipecac, warm bath.

*Rubeola, Morbilli, Measles.*—Treatment:—Mild laxatives, diaphoretics, sage, elder blossoms, balm, eupatorium, bleeding, antimony, nitre, warm baths, stimulating friction, sinapisms, camphor, ammonia, opium, blisters, calomel, squills, serpentaria.

*Scarlatina.*—Treatment:—Gentle aperients, cool or tepid drinks, emetics, brisk mercurial purges, warm baths, nitre, antimony, ammonia, sulphuric acid, cold water to the surface, blisters, blood-letting, camphor, calomel, opium, sinapisms, wine, quinine, capsicum, enemata, serpentaria.

*Erysipelas.*—Treatment:—Blood-letting, purgatives, calomel, emetics, diaphoretics, antimony, ipecacuanha, magnesia, castor oil, warm bathing, bark, wine, opium,



camphor, cupping, blisters, enemata, corrosive sublimate, nitrate of silver, incisions in the inflamed skin.

*Herpes Phlyctenodes*.—Treatment:—Gentle aperients, simple diet, diaphoretics, calomel, ipecac, warm bath, bleeding, Dover's powder, lunar caustic.

*Herpes Labialis*.—Treatment:—Fomentations of white poppy-heads, acetate of lead.

*Herpes Preputialis*.—Treatment:—A solution of borax, nitrate of silver, chloride of sodium in solution.

*Pemphigus*.—Treatment:—Mild laxatives, rest, tepid bathing, bleeding, diuretics, calomel, Fowler's arsenical solution, opium, quinine, sulphuric acid.

*Urticaria, Nettle Rash*.—Treatment:—Emetics, ipecac, mild laxatives, simple diet, cooling drinks, rest, magnesia, quinine, sulphuric acid, iron, Fowler's solution, tepid bath.

*Miliaria, Miliary Fever*.—Treatment:—Ipecac, emetics, warm bathing, diaphoretics, Dover's powder, ammonia, serpentaria, camphor, opiates.

*Lichen*.—Treatment:—Tepid bathing, mild aperients, diluent acidulated drinks, cream, calomel, unsalted butter, sulphuric acid, bleeding, Fowler's solution, laxatives, low diet.

*Eczema*.—Treatment:—Sulphur ointment, tepid bathing, mild laxatives, nitre, tartar emetic, Dover's powders, calomel, nitric acid, soda, sarsaparilla, camphor, opium, stramonium, borax, cantharides, arsenic, Fowler's solution.

*Herpes Zoster*.—Treatment:—Gentle aperients, simple diet, diaphoretics, calomel, ipecac, warm bath, bleeding, Dover's powders, lunar caustic.

*Herpes Circinatus, Ring Worm*.—Treatment:—Alkaline washes, sulphate of copper or zinc, ointment of narrow-leaved dock, mild laxatives.

*Erythema*.—Treatment:—Light diet, gentle diapho-

retics, mineral acids, warm baths, tepid ablutions, borax, acetate of lead, opium.

*Roseola*.—Treatment:—Rest, mild aperients, acidulated cooling diluents, simple diet, refrigerant diaphoretics.

*Hemorrhagica Petechialis*.—Treatment:—Tonics, cinchona, serpentaria, sulphuric acid, wine, nitrate of silver, spirits of turpentine, blood-letting, purgatives, calomel and jalap, oil of turpentine, bathing the surface with a decoction of oak bark.

*Hemorrhages*.—Treatment:—Blood-letting, digitalis, cold, blisters, sinapisms, warmth, sugar of lead, alum, muriated tincture of iron.

*Epistaxis*.—Treatment:—Bleeding, cool drinks, laxatives, nitre, cold water applied to the head, neck and genital organs, sugar of lead, gallic acid, blisters to the nape of the neck, pediluvium, sinapisms to the feet.

*Hæmatemesis, bleeding at the stomach*.—Treatment:—Blood-letting, sinapisms to the epigastric and hypocondriac regions, cupping, warm bath, laxatives, enemas, active purgatives, emetics of ipecac, sugar of lead, spirits of turpentine, castor oil, tincture of iron, juice of the common nettle.

*Hæmaturia, bleeding of the urinary organs*.—Treatment:—Bleeding, warm bath, opium, cupping, sugar of lead, sinapisms over the kidneys, muriated tincture of iron, mucilaginous drinks, alum, ipecac, decoction of logwood, cold water to the genitals, inject cold solutions of the sugar of lead.

*Hæmoptysis, bleeding at the lungs*.—Treatment:—Blood-letting, common salt, sugar of lead, sinapisms to the breast, cooling drinks, laxative enemata, nitrate of potash, opium, calomel, emetics, capsicum, digitalis, caustic issues, setons, leeches to the anus, camphor, ipecac, cantharides, warm hip bath.

*Menorrhagia, uterine hemorrhage*.—Treatment:—

Bleeding, sugar of lead, ipecac, opium, camphor, cinnamon, alum, nitre, astringent injections into the vagina, elixir of vitriol, tampons, emetics, valerian prussiate of iron, ergot, savin.

*Phlegmasia Dolens.* — Treatment : — Blood - letting, leeches, purgatives, magnesia, colchicum, antimony, calomel, opium, ipecac, nitre, frictions with dry flannel, fomentations with hot vinegar and water.

*Apoplexy.* — Treatment : — Copious blood-letting, cold water to the head, fomentations, sinapisms of the tincture of capsicum to the feet, cupping, active purgatives, calomel and colocynth, croton oil, castor oil and turpentine, enemata, aloes, antimony, emetics, zinc, blisters, issues.

*Hemiplegia, palsy of one side ; Paraplegia, palsy of the legs.* — Treatment : — Blood-letting, purgatives, salts, aloes, calomel, scammony, colocynth, capsicum, emetics, blisters to the neck, sinapisms to the ankles, stimulating enemata, friction, stimulating baths, electricity, galvanism, strychnine, salivation, iodine, warm bath.

*Epilepsy.* — Treatment : — Bleeding, cold water in large draughts, emetics in large draughts, emetics of ipecac, calomel, diaphoretics, warm bath, antimony, camphor issues, setons, emetics, spirits of turpentine, castor oil, oil of turpentine, mistletoe, oxide of zinc, nitrate of silver, tin, lead.

*Catalepsy.* — Treatment : — Sulphuric ether, stimulating applications to the feet, enemata, bleeding, purgatives, galvanism, electricity, country air, regular exercise, tepid bathing, blue pill, camphor, tepid shower bath, zinc, valerian, musk, castor, opium.

*Chorea, St. Vitus's Dance.* — Treatment : — Purgatives, mercury, quinine, aloes, bleeding, vegetable diet, Dover's powder, magnesia, valerian assafœtida, hyoscyamus, camphor, opium, turpentine, warm pediluvium, blisters, savin,

iron, leeches and warm bath, sulphur, issues, tartar-emetic ointment, &c.

*Convulsive affections of infants.*—Treatment:—Emetics of ipecac, purgatives, enemata, infusions of savin and spigelia, bleeding, calomel, pediluvium, cold water to the head, blisters, assafoetida, musk, opium, Dover's powder, warm bath, setons, issues, sulphur.

*Hysteria.*—Treatment:—Bleeding, sinapisms, emetics, sulphate of zinc, ipecac, opium, assafoetida, musk, sulphuric ether, castor, enemata, warm pediluvium, turpentine, enemata, camphor, valerian, ictodes-foetida, antimony, iron, mercury, cold shower bath, &c.

*Puerperal Convulsions.*—Treatment:—Blood-letting, sinapisms to the feet, purgative enemata, cupping, cold applications to the head, active cathartics, calomel, jalap, aloes.

*Tetanus.*—Treatment:—Bleeding, leeches, mercury, opium, warm bath, purgatives, castor oil, spirits of turpentine, wine, prussic acid, cold effusions.

*Hydrophobia.*—Treatment:—Local applications to the wound, wash the wound with warm water, excision, cautery, cupping, glysters, ligatures, belladonna, water plantain, vinegar, cantharides, mercury, cold bathing, copious bleeding.

*Monomania.*—Treatment:—Blood-letting, leeches, purgatives, mercury, castor oil, jalap, spigelia, turpentine, emetics, regimen, exercise, warm bath, cold bath, blisters, circular swing, music.

*Delirium Tremens.*—Treatment:—Opium the sheet anchor, castor oil, laxatives, enemata, cupping, emetics of tartar-emetic, ipecacuanha, cold and tepid effusions, ammonia, assafoetida, camphor, Hoffman's anodyne.

*Neuralgia.*—Treatment:—Divide the nerve with a scalpel, quinine, arsenic, carbonate of iron, stramonium, frictions with the extract of belladonna, oil of turpentine,

moxa, leeches, strong magnet, lobelia, zinc, leeches to the anus, aloes.

*Amaurosis*.—Treatment:—Bleeding, free purging with calomel, epsom salts, antimony, salivation, belladonna, blisters or setons on the neck, leeches to the temples, blue-pill, ipecac, sarsaparilla, arsenic, bark, cold bath, capsicum, opium, emetics, leeches around the anus.

*Asthma*.—Treatment:—Blood-letting, hyosciamus, stramonium, emetics of ipecac, squills, vinegar, digitalis, opium, skunk cabbage, lobelia inflata, galvanism, tonics, bark, quinine, arsenic, carbonate of iron, blue-pill, tepid shower bath, warm bath.

*Asphyxia from drowning*.—Treatment:—Artificial inflation of the lungs, gradual warmth, friction with a dry flannel, mustard and capsicum, stimulating injections, warm wine, weak brandy toddy, infusions of balm, sage or catnip.

*Asphyxia, from mephitic gases*.—Treatment:—Dashing cold water on the face and breast, dry frictions to the extremities, cold wine, cold shower bath at short intervals, flesh brush, ammonia, stimulating injections, artificial respiration, abstraction of blood, warm wine, galvanism.

*Asphyxia from Electricity*.—Treatment:—Cold water copiously dashed over the whole body, frictions with the flesh-brush.

*Asphyxia from cold*.—Treatment:—Gradual communication of warmth to the body, immersion in spring water continued forty minutes, gentle frictions with flannel, artificial respiration, gentle stimulants, such as balm, sage, warm wine, &c.

*Pneumothorax*.—Treatment:—Blistering, tartar-emetic ointment, cupping, moxa, issues, setons, &c.

*Dilatation of the ventricles*.—Treatment:—Bleeding, low diet, starvation and venesection, diuretics, squills, nitre, digitalis, purgatives, antimony, valerian, orange

flowers, cat uint, mercury, castor oil, blue-pill, tepid shower bath.

*Sympathetic affection of the heart.* — Treatment: — Gentle aperients, tepid bath, gentle tonics, bitters, iron, bleeding, warm pediluvium, digitalis.

*Angina-Pectoris.* — Treatment: — Bleeding, ether, camphor, opium, hyoscyamus, ammonia, draughts of cold water, emetics, leeches, sinapisms to the legs, mild diet, blue-pill, tepid or cold bathing.

*Indigestion.* — Treatment: — Diet, gentle aperients, mild tonics, regular exercise, rhubarb, aloes, soda, ipecac, hyoscyamus, boncset, mild tonics, alkalies, calomel, gentian, iron, white mustard seed, mercury, antimony, nitro-muriatic acid bath, opium, ammonia, nitrate of potash, leeches, blisters.

*Diarrhœa.* — Treatment: — Mild purgatives, calomel, castor oil, ipecac, laudanum, chalk, warm bath, leeching, Dover's powder, acetate of lead, balsam copaiva, sulphate of copper, injections of mallows, flaxseed or barley water, sulphuric acid.

*Cholera.* — Treatment: — Opium, sinapisms to the region of the stomach and liver, free use of bland drinks, frictions with spirits of turpentine, calomel, warm bath, tinct. of capsicum to the extremities, camphor in vitriolic ether, mucilages in a warm state, ipecac, columbo, calomel, ammonia.

*Cholera Infantum.* — Treatment: — Leeches to the temple, calomel, poultices over the abdomen, blisters behind the ears, ipecac, mild laxatives, castor oil, warm bath, spirits, Dover's powder, magnesia, tartrate of iron, charcoal, wine whey, milk punch, ammonia, common soot.

*Flatulent colic.* — Treatment: — Rapid friction with the flesh-brush, camphor, laudanum, vitriolic ether, oil of juniper, emetics of ipecac, essence of peppermint, ca



thartics, enemata, castor oil, turpentine, laudanum, bleeding, leeches, blisters.

*Bilious Colic.*—Treatment:—Emetics, eupatorium, or camomile tea, antimony, calomel, sinapisms, or epispastics to the epigastrium, castor oil, enemata of castor oil and turpentine, opium, salivation, blood-letting, calomel, magnesia, warm bath.

*Colica Pictonum.*—Treatment:—Blood-letting, opium, calomel, salivation, purgatives, castor oil with spirits of turpentine, purgatives, enemata, glauber salts, flaxseed tea, blisters, leeches, tartar-emetic ointment, warm bath, senna, alum.

*Ileus.*—Treatment:—Bleeding, cupping, leeches, opium, purgatives, calomel, castor oil, enemata of warm water, tobacco, cold water, &c., cold effusions, mercury, tincture of rhubarb, and aloes.

*Constipation.*—Treatment:—Proper diet, active exercise, regular attempts at stool, calomel, rhubarb, jalap, aloes, enemata, blue-pill, aloes and antimony, castor oil, oil of turpentine, salivation.

*Intestinal Worms.*—Treatment:—Spare and liquid diet, mild purgatives, epsom salts, spigelia, followed by calomel and jalap, tin filings, spirits of turpentine, male fern, pomegranate root.

*Hemorrhoids, Piles.*—Treatment:—Light vegetable diet, bleeding, sulphur, cream of tartar, blue mass, nitre, cupping, sinapisms, blisters, injections of cold water, acetate of lead, quinine, opium, cinnamon, aloes, ipecac, astringents, injections, excision of tumors, balsam copaiva, oil of turpentine, aloetic purgatives.

*Jaundice.*—Treatment:—Opium, warm bath, leeching, frictions, emollient applications to the epigastrium, bleeding, purgatives, enemata, emetics, ipecac, mercury, mercurial frictions, nitro-muriatic acid bath, proper diet.

*Diabetes Mellitus.*—Treatment:—Bleeding, leeching,



cupping, opium, lime water, alum, uva ursi, active exercise, friction with flannel, carbonate of ammonia, blisters, quinine, exclusive animal diet.

*Diabetes Insipidus.* — Treatment: — Tonics, alkalies, opium, quinine, bitartrate of soda, mercury, ipecac, magnesia and rhubarb, lime water, uva ursi, hyoscyamus, camphor, gum arabic, mineral acids, quinine, iron, burgundy pitch, galbanum and turpentine to the loins, castor oil.

*Lithic acid diathesis.* — Treatment: — Proper diet, mild aperients, alkalies, bitters, vegetable tonics, calomel, antimony, magnesia, soda, saleratus, gentian, columbo, warm bath, opium, hyoscyamus, vegetable diuretics, bleeding, cupping, colchicum.

*Phosphatic diathesis.* — Treatment: — Opium, tonics, mineral acids, cinchona, uva ursi, pitch, soap or galbanum plaster to the kidneys, issues in the back, hyoscyamus, country air, exercise.

*Ischuria renalis.* — Treatment: — Bleeding, cupping, leeching, warm bath, blisters, stimulating diuretics, spirits turpentine, castor oil, balsam copaiva, juniper oil, nitre and laudanum, mercury.

*Retention of urine.* — Treatment: — Introduction of catheter, canth, camphor, blisters to the pubic region, spirits of turpentine, juniper, oil, dipple oil, Peruvian balsam, cold water to the pubic region, blood-letting, leeching, emollient clysters, fomentations, mild purgatives, antimony, warm bath, calomel, opium.

*Dysuria, pain in voiding urine.* — Treatment: — Mild laxatives, flaxseed tea, gum arabic, Dover's powder, castor oil, rhubarb, calomel, ipecac, lunar caustic, borax, citron ointment, zinc or alum injected into the vagina, diluents, opiates, fomentations, anodyne enemata, flaxseed tea.

*Enuresis, incontinence of urine.* — Treatment: — Alum, cantharides, uva ursi, iron, cold shower bath, electricity, stimulating frictions, cupping the perineum, blisters, ano-

dyne enemata, Dover's powder, stramonium, tonics, iron, quinine, oxyde of zinc, spirits of turpentine.

*Ascites.* — Treatment: — Blood-letting, cups, leeches, blisters, setons, drastic purgatives, cream of tartar, electerium gamboge, diuretics, squills, digitalis, acetate of potash, nitrate of potash, cantharides, juniper berries, colchicum, spirits of turpentine, erigeron, heteraphullum and parsley, calomel.

*Scrofula.* — Treatment: — Diet and regimen, pure air, calomel, blue mass aperients, rhubarb, tonic vegetable bitters, gentian, quinine, leeches, saturnine solutions, nitrate of silver, sulphate of copper, corrosive sublimate, sarsaparilla, conium, antimony, setons.

*Bronchocele, Goitre.* — Treatment: — Iodine, burnt sponge, calcined egg shells, sea water, squills, kermes minerals, belladonna, conium, digitalis, mercury, antimony, blistering, cataplasms, mercurial ointment.

*Scorbutus, Scurvy.* — Treatment: — Fresh vegetables and animal food, lemon juice and vinegar, nitre, iron tonics, cinchona, muriate of lime, lunar caustic.

*Chlorosis.* — Treatment: — Exercise, purgatives, aloes, rhubarb, calomel, ipecac, hyoscyamus, Dover's powders, diet, sea-bathing, tepid shower bath, tonics, iron.

*Gonorrhœa, Clap.* — Treatment: — Blood-letting, saline purgatives, nitre, antimony, gum arabic, warm fomentations, opium, camphor, balsam copaiva, cubebs, spirits of turpentine, injections of sulphate of zinc, and sulphate of copper, nitrate of silver, lunar caustic, cantharides, sarsaparilla, mercury.

*Syphilis.* — Treatment: — Mercury, emollient poultices, lead, sulphate of copper, citron ointment, corrosive sublimate, lunar caustic, bleeding, antimony, zinc, nitre, quinine, opium, hyoscyamus, cicuta, nitrate of silver, Venice turpentine, balsam of copaiva, myrrh, red precipitate ointment, salivation, warm bath, guaiacum.

*Buboes.* — Treatment : — Mercury, frictions, emollient poultices, hydriodate ointment, bleeding, purgatives, antimony, lead water, blisters, opium, sarsaparilla, lead, copper, corrosive sublimate, galbanum, cicuta, carrot poultices, nitric acid, hyoscyamus.

*Amenorrhœa.* — Treatment : — Blood-letting, opium, ether, active cathartics, purgatives, enemata, sinapisms, warm pediluvium, camphor, ergot, blisters, warm bath, antimonials, iron, ipecac, castor oil, balsam copaiva, spirits of turpentine, cantharides.

*Dysmenorrhœa.* — Treatment : — Camphor, Dover's powder, elder blossoms, or eupatorium tea, opium, ipecac, warm bathing, bleeding, aperients, blue-pill, ipecac emetics, antimony, guaiacum, sulphur, stramonium.

*Leucorrhœa, fluor albus.* — Treatment : — Bleeding, purgatives, antimony, blue-pill, injections of warm water and sugar of lead into the vagina, cantharides, balsam copaiva, turpentine, alum, ipecac, astringent injections, such as zinc, copper, alum, oak bark, sulphuric acid, and nitrate of silver.

*Cholera Asphyxia.* — Treatment : — Calomel, opium, camphor, sulphuric ether, mild purgatives, rhubarb, or castor oil, sinapisms, alcoholic vapor bath, blood-letting, cupping, leeches, frictions with tincture of capsicum, brandy, ammonia, turpentine, sugar of lead, mustard, emetics.

#### HOMŒOPATHIC PRACTICE.

The following are *Hahnemann's* remarks on the triturating process of *Homœopathic* remedies, as transcribed from *Jahr's* and *Gruner's Pharmacopœia*.

“All those homœopathic drugs which constitute the pure *materia medica*, are prepared in the manner pointed out below. The following anti-psorics come under this remark : silica, calcarea carbonica, natrum carbonicum, ammonium carbonicum, magnesia carbonicum, baryta carbo-

nica, carbo-vegetabilis, carbo-animalis, graphites, sulphur, antimonium crudum, antimonium, gold, platinum, zinc, copper, silver, tin. Lumps of these metals, not the foil, are rubbed upon a hard, fine hone, under water, or sometimes under alcohol; for example, iron. Of these pulverized substances you take one grain, mercury may be used in the liquid state; of petroleum you take one drop instead of one grain. Put this grain into an unglazed porcelain mortar, then you take thirty-three grains of sugar of milk, and mix them with the drug, by triturating the mass with some force for about six minutes, by means of a porcelain pestle; before you triturate, stir the mass for a little while with a spatula. Having triturated the mass, you stir it again for about four minutes, scraping up that part which covers the bottom of the porcelain mortar, and also that which adheres to the pestle; then you triturate again with great force for about six minutes, without, however, adding anything new. This mass you scrape up again for about four minutes; then add another thirty-three grains of sugar of milk, stir the new compound for a minute with a spatula, then triturate it for six minutes with the pestle, scrape it up for four minutes, triturate again with great force for six minutes, scrape up the mass again four minutes, then add the last thirty-three grains of sugar of milk, and with this last added portion proceed as with the two former. This powder you enclose in a well-corked glass vial, and mark it with the name of the substance, and the figure  $\frac{1}{100}$ , to show that this is the first potency of the substance. In order to prepare the degree  $\frac{1}{10000}$ , you take one grain of the degree  $\frac{1}{100}$ , and add to it thirty-three grains of the sugar of milk. Stir up this mass for a moment with the spatula. Then triturate for six minutes, stir it up for four minutes, triturate again for six minutes, and then stir up again for four. After this, you

add the second thirty-three grains of sugar of milk, proceed then as before; afterwards add the last thirty-three grains of sugar of milk, stir up and triturate again as before, and enclose the mass in a well-corked vial, marked  $\overline{100000}$ , or second potency.

"To prepare the degree  $\overline{100000000}$ , or third potency, you take one grain of the degree  $\overline{100000}$ , and go through the processes of stirring and triturating in the same way as before, employing upwards of an hour for the preparation of each different potency. For the sake of establishing a sort of uniformity in preparing homœopathic remedies, and especially the anti-psories, I never carry the trituration above the millionth degree. From this degree, I derive the dilutions in their various degrees of potency. For the process of trituration, a certain force should be employed; not too much, however, lest the mass adhere too tenaciously to the mortar, to be scraped up in four minutes.

"From the millionth degree of trituration, the dilutions in the various degrees may be obtained by dissolving these triturated substances in alcohol or water. Chemistry is not acquainted with the fact that, all substances, after having been triturated up to the millionth degree, can be dissolved in either alcohol or water. Sugar of milk cannot be dissolved in pure alcohol; this is the reason why the first dilution should be composed of one-half water, and one-half alcohol. To one grain of the millionth, you add fifty drops of distilled water, and turn the vial several times around its axis; by this means the sugar of milk becomes dissolved: then, you add fifty drops of good alcohol, and shake the vial twice, first carrying the arm up and then down. Only two-thirds of the vial should be filled with the solution.

"This vial is then marked with the name of the medicine,

and the number  $\frac{1}{100}$ . Of this solution you take one drop and mix it with ninety-nine or one-hundred drops of pure alcohol, shaking the vial twice after it has been corked; this vial is marked  $\frac{1}{10000}$ . Of this solution you take one drop, and mix with it ninety-nine or one-hundred drops of pure alcohol, then shake the vial twice, and mark it  $\frac{1}{1000000}$ . Of this potency you again take a drop, and mix it with ninety-nine or one-hundred drops of alcohol, shaking this third vial twice, and mark it  $\frac{1}{100000000}$ . In the same way you continue the preparation, and marking of the higher potencies,  $\frac{1}{10000000000}$ ,  $\frac{1}{100000000000}$ ,  $\frac{1}{1000000000000}$ , IV, V, &c.

“The intermediate vials are put in perpendicular boxes and kept in the dark, in order not to be affected by the light of day. In practice only the full vials are used. The shaking being accomplished by means of moderate strokes with the arm, it is desirable that the vials be of such size that the one-hundred drops will only two-thirds fill them. Vials that have contained one medicine, ought never to be used for another even if they have been previously rinsed with great care.”

“Vegetable substances which can only be had dry, are triturated in the same manner. The millionth trituration may then be dissolved, like all the other substances, either in water or alcohol. In this state, they may be preserved much better and longer than the common tinctures which easily spoil.

“Of the juiceless *vegetable* substances, oleander, thuja, mezereum, you may take one grain and a half, the fresh leaves, bark, roots, &c, and convert them into the millionth trituration, with three times one-hundred grains of sugar of milk. Of this trituration you take one grain, and carry it through the vials, obtaining in this way any degree of potency that may be desired; shake each vial twice, first carrying the arm up and then down. The



same process of trituration may be resorted to in regard to the recently obtained medicinal juices. Squeeze the juice out of the substance, triturate one drop with the necessary quantity of sugar of milk to obtain the millionth trituration. Of these you take one grain, dissolve it in an equal proportion of water and alcohol, and then carry a drop of this mixture through a series of twenty-seven vials, obtaining in this way the degree of potency that is desired.

“By triturating the juice first, the medicinal virtues of the drug are better developed, than by simply mixing the juice with the alcohol by means of two shakes. I know this from experience.

“In the beginning of my practice, I gave a small portion of a grain of the millionth trituration at a dose. But the uncertainty of this mode of exhibiting the remedy, led me to the discovery of preparing the dilutions, and to the use of the globules, any definite number of which may be moistened with the dissolved drug. Homœopathy being based upon a law of nature, it should avoid and exclude all uncertainties.

“Frequent observations have convinced me that it is better to shake the vial twice only, in order to develop the medicinal virtue of the drug just enough to affect the disease in a proper manner. By shaking the vial ten times, as I was in the habit of doing, the proportion between the progressively developed intensity of action of the medicinal properties of the drug, and the degree of potency, were destroyed. The object of the dynamizing process, is to develop the intensity of action of the medicinal properties of the drug, at the same time as that action is reduced to a milder tone. Two shakes are sufficient to establish the due proportion between these two effects.



*Table showing the quantity of alcohol or fluid, required to dissolve one single grain or drop of a homœopathic drug (as sulphur, aconite, etc.), down into the following homœopathic attenuations or dilutions. — [DR. SIMPSON ON HOMŒOPATHY, p. 285.]*

- 1st attenuation. — One grain or drop in one and half teaspoonful of alcohol.
- 2d attenuation. — One grain in twenty-one fluid ounces of alcohol.
- 3d attenuation. — One grain in two thousand and eighty ounces, or in one hundred and four pints of alcohol.
- 6th attenuation. — One grain in thirteen million gallons, or in two hundred and six thousand hogsheads, or in fifty-one thousand tuns of alcohol.
- 9th attenuation. — One grain in a lake of alcohol with a volume of about fourteen cubic miles, or in a lake of fifty fathoms in depth, and presenting two hundred and fifty square miles of surface.
- 12th attenuation. — One grain in a sea containing about fourteen million cubic miles of alcohol, or in a quantity of fluid equal to a sea six times the size of the Mediterranean Sea.
- 15th attenuation. — One grain in an ocean of fourteen billion cubic miles of alcohol, or in an ocean about forty-six thousand times greater than the whole waters of all the oceans of the earth.
- 24th attenuation. — One grain in an ocean of fourteen quintillion cubic miles of alcohol, or in a quantity sufficient to make one hundred and forty masses, each filling a sphere extending from limit to limit of the orbit of the planet Neptune.

30th attenuation.—One grain in an ocean of fourteen septillion cubic miles of alcohol, or in a quantity sufficient to make one hundred and forty billion spherical masses, extending from limit to limit of Neptune's orbit, or in a quantity equal to many hundred spheres, each with a semidiameter or radius extending from the earth to the nearest fixed star.

*List of diseases and Homœopathic remedies by Dr. J. Laurie.*

The remedies of the vegetable kingdom are the third attenuation, those of the mineral kingdom of the fourth.

*Typhus fever.*—Remedies :—Bryonia, arsenic, rhus toxicæ, croton oil, nux vomica, aconite, belladonna, camphor, hen-bane, cocculus Indicus, arnica. The sugar globules are moistened with these tinctures, and five or six given every two or three hours.

*Intermittent fevers.*—Remedies :—Quinine, arsenic, ipecac, nux vomica, antimony, belladonna, opium, cocculus Indicus, Ignatia or St. Ignatius' bean, white hellebore, aconite, Cayenne pepper.

*Bilious fever.*—Remedies :—Aconite, belladonna, bryonia, chamomilla, nux vomica, mercurius, pulsatilla, quinine, digitalis, ipecac, tartar-emetic, arsenic.

*Yellow fever.*—Remedies :—Belladonna, bryonia, rhus toxicodendron, arsenic, nux vomica, veratrum album, lachesis, or viper poison, Spanish flies, mercurius.

*Scarlet fever.*—Remedies :—Belladonna, mercurius, arsenic, nux vomica, pulsatilla, aconite, opium, tartar-emetic.

*Scarlet Rash.*—Remedies :—Belladonna, aconite, coffea, sulphur, ipecac, pulsatilla, bryonia, duleamara, belladonna, arsenic, phosphorus, rhus tox, swamp sumach, cinchona, conium, mercurius, capsicum.

*Rubeola, measles*—Remedies :—Aconite, coffea, pulsatilla, sulphur, nux vomica, bryonia, ipecac.

*Variola, small-pox.*—Remedies :—Coffea, chamomilla, aconite, ipecac, tartar-emetic, bryonia, rhus, belladonna, pulsatilla, stramonium, muriatic acid, mercurius, sulphur, lachesis, vegetable charcoal, arsenic, cinchona, phosphorus, sulphuret of lime, acetate of copper.

*Varicella, chicken-pox.*—Remedies :—Aconite, coffea, belladonna, emetic tartar, mercurius.

*Miliary fever.*—Remedies :—Aconite, coffea, belladonna, veratrum, arsenic, ipecac, bryonia, nux vomica, carbonate of lime, chamomilla, tincture of sulphur, acetate of copper.

*Urticaria, nettle-rash.*—Remedies :—Dulcamara, aconite, nux vomica, pulsatilla, crude antimony, belladonna, sulphuret of lime, rhus, bryonia, nettles, sulphur, nitric acid, lime.

*Quinsy.*—Remedies :—Mercurius, lachesis, pulsatilla, cantharides, nux vomica, chamomilla, coffea, ignatia, sulphur, veratrum, capsicum.

*Mumps.*—Remedies :—Mercurius, belladonna, coccullus, carbo-vegetabilis.

*Indigestion.*—Remedies :—Pulsatilla, arsenic, chamomilla, rhus toxicodendron, sulphur, ipecac, cinchona, nux vomica.

*Flatulent Colic.*—Remedies :—Cinchona, arsenic, nux vomica, pulsatilla, carbo-vegetabilis, colchicum, belladonna.

*Hæmatemesis, vomiting blood.*—Remedies :—Nux vomica, pulsatilla, cinchona, arnica, sulphur.

*Constipation.*—Remedies :—Opium, bryonia, lachesis, alum, nux vomica, lead, platina, nitro-muriatic acid, silicea, lycopodium, china.

*Hæmorrhoids.*—Remedies :—Aconite, nux vomica, sulphur, arsenic, belladonna, rhus, pulsatilla, platina, ignatia, colocynth.

*Prolapsus ani.*—Remedies :—Ignatia, nux vomica, mercurius, sulphur, calcarea.

*Diarrhœa*.—Remedies :—Dulcamara, bryonia, cinchona, chamomilla, mercurius, rhubarb, pulsatilla, ipecac, nux vomica, colocynth, arsenic, crude antimony, rhus, lachesis, nitric acid, phosphoric acid, magnesia.

*Dysentery*.—Remedies :—Aconite, chamomilla, ipecac, mercurius, corrosive sublimate, bryonia, arsenic, carbo vegetabilis, cinchona, cantharides, sulphur.

*Cholera*.—Remedies :—Ipecac, veratrum album, arsenic, cinchona, pulsatilla, copper, sulphur, carbo vegetabilis, nux vomica, ergot, stramonium.

*Cholérine*.—Remedies :—Veratrum, mercurius, pulsatilla, nux vomica, chamomilla, colocynth, ferrum, Dulcamara, carbo vegetabilis, cantharides.

*Inflammation of the liver*.—Remedies :—Belladonna, aconite, nux vomica, chamomilla, mercurius, arsenic, pulsatilla, nux vomica.

*Jaundice*.—Remedies :—Mercurius, cinchona, pulsatilla, digitalis, chamomilla.

*Inflammation of the spleen*.—Remedies :—Aconite, arsenic, cinchona, nux vomica, bryonia.

*Inflammation of the stomach*.—Remedies :—Aconite, belladonna, ipecac, crude antimony, nux vomica, lachesis, pulsatilla, arsenic, cantharides, hyoscyamus, arnica.

*Inflammation of the bowels*.—Remedies :—Arsenic, mercurius, nux vomica, lachesis, nitric acid, bryonia, pulsatilla, colocynth, chamomilla, cinchona, colchicum, phosphorus, sulphur, silicea.

*Inflammation of the peritoneum*.—Remedies :—Aconite, belladonna, arsenic, chamomilla, lycopodium, colocynth.

*Worms*.—Remedies :—Aconite, ferrum, nux vomica, mercurius, sulphur, calcarca, silicea, pulsatilla, ipecac, antimony, cicuta, cinchona.

*Laryngitis*.—Remedies :—Sulphur, burnt sponge, Aconite, lachesis, belladonna, hyoscyamus.

*Hooping Cough.*—Remedies :—Dulcamara, pulsatilla, mercurius, belladonna, aconite, ipecac, nux vomica, chamomilla and sulphur.

*Croup.*—Remedies :—Aconite, sulphur, burnt sponge, arsenic, tartar emetic, lachesis, caustic, ammonia, bromin.

*Influenza.*—Remedies :—Camphor, aconite, mercurius, arsenic, bryonia, phosphorus, belladonna, pulsatilla, arnica.

*Bronchitis.*—Remedies :—Aconite, pulsatilla, bryonia, sponge, belladonna, nux vomica, lachesis, mercury, lycopodium, stannum, dulcamara, arsenic, ipecac, tartar-emetic.

*Pneumonia.*—Remedies :—Aconite, bryonia, phosphorus, tartar-emetic, mercurius, belladonna, lachesis, arsenic, antimony, sulphur.

*Pleuritis.*—Remedies :—Aconite, bryonia, sulphur, mercurius, arsenic, arnica.

*Hæmoptysis.*—Remedies :—Pulsatilla, bryonia, nux vomica, rhus, arnica, aconite, ipecac, iron, opium, cinchona.

*Consumption.*—Remedies :—Ipecac, arsenic, nux vomica, bryonia, pulsatilla, tartar-emetic, opium, china, sambucus, musk, belladonna, lachesis, veratrum, dulcamara, cinchona, stannum.

*Determination of the blood to the head.*—Remedies :—Aconite, nux vomica, calcarea, belladonna, opium, coffea, chamomilla, ignatia, arnica, mercurius, pulsatilla, lycopodium, dulcamara, sanguinaria, cinchona, sulphur, carbonate of lime, opium, conium.

*Inflammation of the brain and its membranes.*—Remedies :—Aconite, belladonna, bryonia, hyoseyamus, opium, stramonium, zinc, acetate of copper, rhus, lachesis, mercurius.

*Apoplexy.*—Remedies :—Aconite, belladonna, nux vomica, opium, lachesis, arnica, pulsatilla, ipecac, carbonate of barytes.

*Paralysis, Palsy.*—Remedies :—Arnica, bryonia, rhus, sulphur, electricity, galvanism.

*Tetanus.* — Remedies : — Belladonna, cicuta, opium, arnica, ignatia, stramonium, hyoscyamus.

*Delirium Tremens.* — Remedies : — Nux vomica, opium, aconite, belladonna, lachesis, sulphur, calcarea.

*Epilepsy.* — Remedies : — Belladonna, copper, hyoscyamus, ignatia, lachesis, nux vomica.

*Neuralgia.* — Remedies : — Belladonna, platina, lycopodium, arsenic, colocynth, veratrum, china, assafoetida, spigelia.

*Headache.* — Remedies : — Belladonna, bryonia, rhus, sepia, silicea, pulsatilla, china, veratrum, lachesis, mercurius, colocynth, chamomilla, sulphur.

*Erysipelas.* — Remedies : — Aconite, belladonna, bryonia, pulsatilla, rhus, arsenic, lachesis, sulphur, copper.

*Carbuncle.* — Remedies : — Lachesis, silicea, arsenic.

*Chilblains.* — Remedies : — Nux vomica, pulsatilla, belladonna, rhus, nettles, arsenic, sulphur.

*Corns.* — Remedies : — Arnica, ammonia, bryonia, nux vomica, rhus, ignatia.

*Scabies, Itch.* — Remedies : — Sulphur, mercurius, veratrum, silicea, sulphuric acid, arsenic, dulcamara, pulsatilla.

*Herpes Circinatus, Ringworm.* — Remedies : — Rhus, sulphur, calcarea.

*Scald-head.* — Remedies : — Rhus, sulphur, arsenic, dulcamara, bryonia.

*Inflammation of the kidneys.* — Remedies : — Aconite, cantharides, arsenic, sulphur, mercurius, arnica, nux vomica.

*Cystitis, inflammation of the bladder.* — Remedies : — Cantharides, pulsatilla, digitalis, arsenic, carbo-vegetabilis, sulphur, nux vomica.

*Gravel.* — Remedies : — Sarsaparilla, nux vomica, graphites, sulphur, cannabis, lycopodium, calcarea.



*Retention of the urine.* — Remedies :— Aconite, camphor, arsenic, phosphorus, belladonna, cantharides.

*Difficulty in discharging urine.*—Remedies :—Aconite, sulphur, belladonna, cantharides, opium, pulsatilla, spirits of camphor, mercurius, nux vomica.

*Suppression of urine.* — Remedies :— Aconite, cantharides, pulsatilla, camphor, belladonna, opium, lycopodium,

*Diabetes.* — Remedies :— Veratrum, mercurius, nitric acid.

*Hæmaturia.*—Remedies :—Cantharides, quinine, pulsatilla, mercurius, sulphur, ipecac, camphor, carbo-vegetabilis, arnica, nux vomica, nitric acid, aconite, squills, zinc, calcarea, petroleum, cannabis, cocculus indicus, capsicum.

*Gout.* — Remedies :— Aconite, pulsatilla, arsenic, iron, nux vomica, bryonia, sanguinaria, sulphur, saffron.

*Rheumatism.*—Remedies :—Aconite, bryonia, sulphur, belladonna, rhus, chamomilla, ignatia, conium, mercurius, lachesis, pulsatilla, arnica, mezereum, euphorbium, pink root, digitalis, phosphorus, veratrum, caustic.

*Lumbago.*—Remedies :—Aconite, bryonia, nux vomica, rhus, belladonna, pulsatilla, mercurius.

*Ophthalmia.* — Remedies :— Aconite, belladonna, nux vomica, cinchona, arsenic, euphrasia, ignatia, pulsatilla, mercurius, sulphur.

*Scrofulous Ophthalmia.*—Remedies :—Arsenic, conium, crude sulphur, lime, bitter sweet, iron, graphites, gold, lycopodium, indian hemp, chamomilla, digitalis, iodine, mercurius, corrosive sublimate, magnesia, nitric acid, lachesis, cinchona, pink root.

*Ulceration of the cornea.* — Remedies :— Nitric acid, arsenic, euphrasia, sulphur, calcarea, mercurius, lachesis, silicea, nitre.

*Epistaxis.*—Remedies :—Aconite, belladonna, bryonia, mercurius, carbo vegetabilis, graphites, pulsatilla, calcarea,



arnica, rhus, iron, sepia, nux vomica, lachesis, bryonia, dulcamara, saffron, musk, ammonia, silicea.

*Stomacace.*—Remedies :—Mercurius, nitric acid, nux vomica, capsicum, carbo-vegetabilis, sulphur, nitre, borax, iodine, lemon juice, dulcamara.

*Scurvy.*—Remedies :—Vegetable carbon, mercurius, nux vomica, pulsatilla, sulphur, creosote, belladonna, nitric acid, quinine, alum, arnica, chamomilla.

*Ascites.*—Remedies :—Arsenic, cinchona, iron.

*Anasarca.*—Remedies :—Hellebore, bryonia, mercurius, arsenic, phosphorus, iron, colchicum.

*Hydrothorax, dropsy of the chest.*—Remedies :—Arsenic, dulcamara, digitalis, pink root, bryonia, aconite.

*Hydrophobia.*—Remedies :—Belladonna, hyoscyamus, stramonium, cantharides.

*Amenorrhœa.*—Remedies :—Nux vomica, sulphur, opium, aconite, veratrum, pulsatilla.

*Menorrhagia.*—Remedies :—Nux vomica, chamomilla, sabina, ignatia, platina, veratrum, sulphur.

*Dysmenorrhœa.*—Remedies :—Pulsatilla, belladonna, nux vomica, coffea, sulphur, calcarea, chamomilla.

*Turn of life.*—Remedies :—Cocculus, aconite, pulsatilla, nux vomica, lachesis.

*Leucorrhœa.*—Remedies :—Pulsatilla, china, calcarea.

*Hysteria.*—Remedies :—Calcarea, nitric acid, veratrum, belladonna, pulsatilla, gold, stramonium.

*Difficult dentition.*—Remedies :—Chamomilla, bryonia, zinc, sulphur.

Sugar globules are medicated with these remedies, in the third to the sixth potencies.

*Method of preparing the sugar globules, from Jahr and Gruner, p. 27.*

These are made by confectioners, and are composed of sugar and starch; they can be had of different sizes, from that of a millet-seed to that of a buck-shot. The whitest, dryest, and hardest, should be selected for medicinal use; they should be all of equal size, and not mixed with sugar-dust. After having moistened the globules with the medicine in some suitable vial, we turn them out on paper with raised edges, and agitate them until they cease to adhere one to the other. Should we afterwards wish to put them into the same bottle in which we had moistened them, we should take care to dry it also, before making use of it. The complete desiccation of the globules, before bottling them, is absolutely indispensable, since, without that precaution, they fall into powder in a short time, and lose their medicinal virtues.

*A table showing the amount of alcohol required to form the different dilutions. One grain of the millionth degree of trituration, is added to 100 drops of alcohol, and one drop of that to 100 more of alcohol, making the first dilution.*

First	attenuation =	1 =	100 =	hundredths
Second	" =	2 =	10,000 =	ten thousandths.
Third	" =	3 =	I =	millionths.
Fourth	" =	4 =	100 I =	hundred millionths.
Fifth	" =	5 =	10,000 I =	ten thousand millionths
Sixth	" =	6 =	II =	billionths.
Seventh	" =	7 =	100 II =	hundred billionths.
Eighth	" =	8 =	10,000 II =	ten thousand billionths.
Ninth	" =	9 =	III =	trillionths.
Tenth	" =	10 =	100 III =	hundred trillionths.
Eleventh	" =	11 =	10,000 III =	ten thousand trillionths.
Twelfth	" =	12 =	IV =	quadrillionths.
Fifteenth	" =	15 =	V =	quintillionths.
Eighteenth	" =	18 =	VI =	sextillionths.
Twenty-first	" =	21 =	VII =	septillionths.
Twenty-fourth	" =	24 =	VIII =	octillionths.
Twenty-seventh	" =	27 =	IX =	nonillionths.
Thirtieth	" =	30 =	X =	decillionths.

## HYDROPATHY.

By Hydropathy is understood a system of medical practice, in which water, in its various applications, constitutes the only remedy. R. T. Trall, M. D., in his work on the hydropathic system of practice, states, that in order to understand the philosophy of water-cure, it is necessary to understand the physiological relations of water to the healthy organism. These he states in the following propositions:

"1. Water constitutes the greater proportion of the entire bulk of the body.

"2. Water composes more than three-fourths of the whole mass of blood, more than seven-eighths of the substance of the brain, and more than nine-tenths of the various colorless fluids and secretions.

"3. Water is the only medium through which waste, or effete particles of extraneous matter, are conveyed from all parts of the system to the excretory organs to be expelled.

"4. Water is the only solvent diluent and detergent in existence, for animal and vegetable excrementitious matter.

"5. Water is the only material capable of circulating in all the tissues of the body and penetrating their finest vessels, without vital irritation or mechanical injury.

"6. The only morbid effects result from improper temperature, and over-distension of the hollow viscera, or circulating vessels, from excess of quantity — effects never necessarily unavoidable."

Hydropathists claim disease to be the result of the misuse or abuse of some one or more of the hygienic agencies, such as bad air, impure light, defective aliment, indolence, &c. They still further claim, that medicinal drugs never tend to correct the functional disturbances produced by these morbid influences, although animal organism consists

of true medicinal elements, and for the want of a due amount of which, disease is frequently produced. The teeth cannot be developed without lime, carbonic and phosphoric acids, nor the enamel without fluoride of calcium. Healthy bile, mucus, sweat, saliva, tears, cartilage, &c., all contain carbonate of soda, and if the soda is deficient, these fluids are diseased. Phosphate of lime is one of the constituents of serum, saliva, bones and muscles, which may become diseased by a deficiency of this material; by administering this article to the patient, he is restored. Hydrochloric acid is one of the ingredients of gastric juice, a deficiency of which, causes dyspepsia; the most ample experience shows that salt will remedy the difficulty. Iron is one of the ingredients of the blood, and without it the blood is *anæmic*. Iron will correct the difficulty. The above facts, with many others that might be adduced to show the utter fallacy of depending entirely upon water to correct the abnormal conditions of the system, yet it is a valuable auxiliary. The various methods of applying water for the cure of disease, are the following :

1. The wet sheet pack : The mode of applying this bath, according to Dr. Trall, is as follows : Take a sea-grass or straw mattress, upon which spread from three to five large thick comfortables, then a soft flannel blanket, and lastly the wet sheet, wrung sufficiently so as not to drip. Two pillows placed upon the mattress are necessary for the head. The patient lying down on the back is quickly enveloped in the sheet, followed by the blanket and comfortables. A light feather bed may be thrown over the top, in which case two less comfortables will be required. If the feet remain cold, bottles of hot water should be placed to them. Headache is prevented by the application of cold packs. In wrapping up the patient, great care should be taken to turn the clothing snugly and smoothly around the neck and feet. For very delicate persons, the

sheet should first be wrung out of tepid or even warm water. On coming out of the pack, the plunge, douche, rubbing wet-sheet, or towel washing may be employed, as indicated.

This bath is used by hydropathists in a great variety of diseases, both acute and chronic. In chronic disease it is used for the purpose of producing reaction; hence the packing is continued for a considerable length of time, and a full amount of clothing is used. When it is used in acute diseases to overcome inflammation and restore the superficial capillary circulation, the water is used at a lower temperature, and the packs are more frequently changed. This method of applying water is a very favorite one among most hydropathists, in typhoid fever, inflammation of the bowels, lungs, &c.

#### *The Half Pack Sheet.*

The half pack is the application of the wet sheet to a portion of the body only; as to the bowels in Enteritis, or to the lungs in pneumonia. This bath is also used on feeble persons, and in chronic diseases where there is much debility. This method of applying water is a favorite one of mine, in all cases of inflammation of the lungs, and bowels, also in most chronic affections of the uterus.

#### *The Douche Bath.*

The douche bath may be applied either warm or cold. It is given by allowing a stream of cold water to fall upon a portion of the body from a height of four or five feet. The stream should be from one eighth to one half of an inch in diameter, and should be repeated from time to time as indicated. It is used in chronic affections of the liver, tumors, local rheumatism, inflammation of the brain, hip disease, &c. When the vital reaction is feeble, the water should be warm, but where it is vigorous, cold water should be used.

*Dripping Sheet.*

The dripping sheet is another form of applying cold water. It is given as follows: The patient standing in a tub, the sheet is suddenly thrown around his body, which it envelopes from the head to the feet, and the body is rubbed by the hands of the attendant, outside the sheet, for five or ten minutes, when the sheet should be removed, and the body rubbed with a dry towel.

This bath is used in the early stage of fevers, also in most chronic diseases. I have found this form of bathing a very convenient one, not only in removing disease, but when used once or twice a week an excellent preventive.

*The Hip or Sitz Bath.*

For the sitting bath, sufficient water should be placed in a tub to cover the hips and lower portions of the abdomen, when the patient is in a sitting posture. The water may be of any temperature to suit the indications. This bath is beneficial in diseases of the uterus, as leucorrhœa, dysmenorrhœa and prolapsus. In these diseases the baths are mostly used cold.

This bath is also used in dysentery, piles, hip disease, &c. The baths should be repeated as often as the nature of the case appears to indicate.

*Shallow Bath.*

This bath is taken in a tub large enough for the patient to sit upright with ease. The water should be from four to six inches deep. The temperature of the water, as in other forms of bath, should be warm or cold as indicated. The shallow bath is used in all cases where the sitz bath is recommended, and in many cases to much advantage.

*Plunge Bath.*

This process consists in immersing the whole body up to the neck in water quickly, where there is room sufficient for the patient to exercise his limbs under water. A plunge bath may be easily constructed where there is a running stream. A box eight or ten feet long, and five or six feet high, may serve a good purpose for this bath. This form of bath is of utility in all cases where there is sufficient vital reaction, except in organic disease of the heart, and tuberculous affections of the lungs.

*Foot Bath.*

By foot bath is meant merely placing the feet in warm water. This is a valuable auxiliary in acute and most chronic diseases. It acts as a revulsive to diseases of the brain, stomach and bowels. Where there is determination of blood to the head, stomach or bowels, the bath should be hot, and followed by brisk friction. The benefit of the bath will be much increased by the addition of lye and pulverized mustard, in acute diseases.

*Head Baths.*

The head bath may be given in two ways. By laying folded towels upon the head that have been wrung out of cold water, or by allowing a stream of water to fall upon the head. The most common method in acute diseases is to wrap the head in wet cloths, and change as often as they become warm. In some violent affections of the brain, more benefit may be derived from a stream of cold water falling upon the head from some distance.

*Cataract Bath.*

This bath consists in two streams of water falling obliquely upon opposite parts of the body. This form of



bath may be used for the same purpose as the douche, as also a substitute for the wave bath or plunge, when the patient is too weak to take the latter.

*Dry Pack, or Sweating Bath.*

This is managed as the wet-sheet packing, except for the wet sheet a dry blanket is substituted. In either process, wet cloths should be applied to the head, and plenty of air should be admitted into the room. This bath is useful where the patient has not sufficient vitality to render the wet-sheet pack or other cold applications practicable. Ague chills may be much lessened in their severity by this process of sweating.

*The Vapor Bath.*

This is valuable in colds the first stages of fevers, &c. The patient may sit on an open chair with a blanket of sufficient thickness to retain the steam pinned about the neck. A pan of water may be placed under the chair, in which hot bricks are immersed to keep a vapor constantly rising; or a small quantity of alcohol may be burnt beneath the chair, to produce perspiration. This bath may be continued from fifteen to twenty-five minutes.

*The Wave Bath.*

This consists in extending the body in a swift current of water. It is for the same purpose as the plunge bath.

*The Rain Bath.*

This is taken by walking in a brisk shower, dressed in thin apparel. This is used for producing reaction; it stimulates the glands, hence it is useful in scrofula. The walk should not be prolonged to produce fatigue; when the patient returns, the cloths should be removed, and the body wiped with a dry towel.

*Portable Shower Bath.*

This process may be performed by showering the body with an ordinary tin shower-pot.

*The Affusion Bath.*

This consists in pouring water over different parts of the body, while the patient is standing in a tub.

This is a favorite method of applying water in fevers and inflammatory diseases. Where this bath is used for cooling the body, it should be repeated until the object is accomplished.

*Towel or Sponge Bath.*

This bath consists in washing the surface with a towel or sponge. This is the most convenient of all the baths. It is used extensively in fevers. It should never be neglected in their treatment, but should be repeated two or three times a day. A small amount of saleratus added to the water is a valuable auxiliary.

*Wet Dress Bath.*

The patient is enveloped in a dripping night dress, placed in bed, and treated the same as in the wet sheet pack.

*Leg-Bath.*

The leg-bath consists in immersing the legs in a tub of water. It is used for gout, rheumatism, ulcers, diseases of the joints, &c.

*Fomentations.*

These are cloths wrung out of hot water, and applied to different parts of the body, as may be indicated.

*Wet Bandages.*

This is another method of applying cold or warm water to different parts of the body. The cold, wet girdle, is used to good advantage in prolapsus uteri, and leucorrhœa.

*Hand Friction.*

This should be applied after all baths. It is preferable to any other kind of friction. In all cases where baths are made use of to invigorate the system, friction should be applied until reaction is produced.

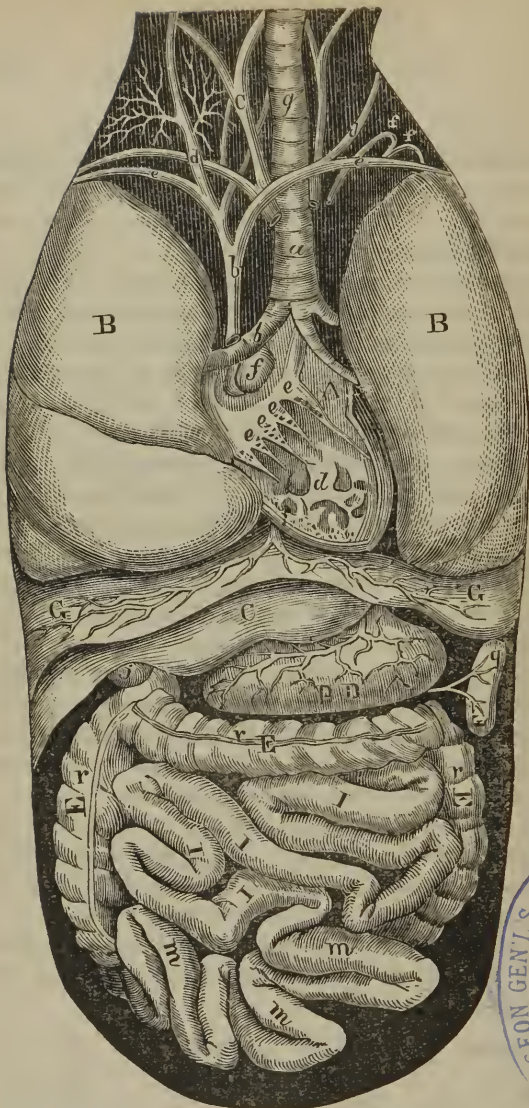
TEMPERATURE OF BATHS.\*—Hot, warm, tepid, cool, and cold, are only employed as approximate terms. Water that feels hot to one may only be warm to another. The sensations are generally a better guide for regulating the temperature of a given bath than the thermometer; still the latter is indispensable in many cases, and in all, convenient. As a general rule, the more feeble and delicate the patient, the more strictly should we follow the test of his feelings, in administering tepid, warm, or cold baths. When the circulation is vigorous, and the vital temperature well developed, we may regulate any bath with sufficient precision by the thermometer. It is a useful precaution, when commencing treatment with very susceptible patients, to test their sensibility to different temperatures of water, after which the physician or patient can prescribe them thermometrically. Some Water-Cure books seem to make it an especial point, to be thermometrically exact in directing particular baths for given diseases: as, for example, sitz baths, at 59°; shallow-baths, at 63°; half-bath, 74°, &c. These nice distinctions are not to be arbitrarily imitated, but may be regarded as land-marks, to keep us within reasonable bounds.

Baths may be distinguished into cold, below 65° Fahr.; tepid, 65° to 80°; warm, 80° to 98°. But a better division may be made thus:

Very cold,	32° to 40°	Tepid,	72° to 85°
Cold,	40° to 55°	Warm,	85° to 98°
Cool,	55° to 65°	Hot,	98° to 115°
Temperate,	65° to 72°	Vapor,	98° to 125°

---

\* Trall.



A. The Heart. B. B. The Lungs. G. G. Diaphragm. a. The Trachea. b. The Vena Cava. C. The Carotid Artery. d. d. The Jugular Veins. e. e. The Subclavian Veins. f. f. Thoracic Duct. g. Trachea or Wind Pipe. h. The Right Auricle. D. The Stomach. E. E. E. The Colon, or the large Intestine. F. The Spleen. j. The Gall Bladder on the under surface of the Liver. I. I. I. I. The Jejunum, the upper-part of the small Intestines. m. m. m. The Ileum, or the lower part of small intestines. r. r. r. Ascending Transverse, and descending Colon. p. Arteries and Veins of the stomach. q. Solenostic Arteries and Veins. e. e. e. e. Valves of the Heart. d. Vein of the Heart.

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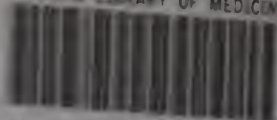
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